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New Findings in Nutrition Research[1]

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DIETITIANS ARE CLEARLY in the forefront of contributing to advances in the science of nutrition and in searching for ways to apply the findings on behalf of the public. You have the happy faculty of combining the ideas of research personnel with the realities of life in terms of what people will eat. On this latter score, however, one often finds that the problems imposed by human behavior can be described more aptly as misbehavior.

For example, the most serious form of malnutrition in this part of the world is associated with eating too much, in terms of total calories. The deficiency in this case is not in the food, but in the patient. The sick person often doesn't eat enough, and the well person eats so much that sickness follows. Dietitians, food technologists, and homemakers are obligated to make foods attractive and pleasant. But, if the consumer doesn't cooperate, how can we solve all the problems?

We can be grateful that advances in the science of nutrition, in food technology, in education, and in economic status have finally caused the classical deficiency diseases almost to vanish from this part of the world. This accomplishment with an abundance of high quality food in the United States, Canada, and Western Europe does not in any sense imply that everyone has an ideal diet. Less severe deficiencies and imbalances undoubtedly will continue to plague us, primarily because of peculiarities in individual behavior, handicaps in reaching the public with an adequate educational program, and the limitations in our techniques of identifying the levels of nutrient intake that are not optimum but nevertheless do not result in an immediate specific disease. Unfortunately, acceptance of this viewpoint on the part of the public tends to make a great many people vulnerable to the false claims of faddists and irresponsible promoters of products that have little or no merit.

[1] Presented at the 39th Annual Meeting of The American Dietetic Association in Milwaukee, on October 10, 1956.

Protein Intakes

Even with the resources that we have had in this country, it will be noted that the last major deficiency diseases to be overcome in a practical sense were associated with a low intake of high quality protein foods, such as meats, fish, eggs, and milk. Pellagra, riboflavin deficiency, and the nutritional anemias have been among the last of the deficiencies to yield to the general advance. In the less favored parts of the world, severe protein deficiencies, such as we see represented by pellagra, kwashiorkor, and stunting of growth, still represent one of the most serious detriments to health.

We are still far from confident but we can measure degrees of protein deficiency or imbalance that may impose the risk of impaired health. The problem of adequate intakes of protein in this part of the world is largely a matter of improved education. The average per capita consumption of protein in the United States was approximately 98 gm. per day in 1955, about two-thirds of it from foods of animal origin. This achievement compares favorably with the generous levels advocated in the National Research Council's Recommended Dietary Allowances, in which it is suggested that half of the total protein should be from animal sources and that the intake per day should range from 55 to 100 gm., depending on the age and circumstances of the individual. Field studies of protein intakes also indicate that protein deficiencies are not common here. The protein requirement of infants, also, may well be less than has been sponsored widely in this country. The suggestion that an infant requires more protein of good quality than is furnished by human milk can scarcely be accepted. The evidence does not justify such a naive assumption (1–6).

The findings of Elvehjem and his associates at the University of Wisconsin continue to give evidence of the importance of amino acid balances in contrast to merely furnishing more than minimum quantities of the essential amino acids in working

toward optimum nutrition (7). Not only is this field of work important with respect to rates of growth and marginal types of malnutrition, but specific imbalances appear to be important in the incidence of the so-called protein-deficiency diseases such as pellagra and kwashiorkor. Partly as a result of findings of this type and partly as a result of noting the importance of the time factor in absorbing amino acids from proteins or from amino acids added to protein foods, there is a justified conservative attitude among nutrition scientists with respect to enrichment of the human food supply with synthetic products. Nevertheless, the technical advances made in livestock feeding with methionine, lysine, and urea have given an impetus to the interest in future developments of that nature (8–12).

The general picture still seems to be that the areas of the world where the cost of synthetic amino acids might be supported by the consuming public are also the areas where good quality protein foods are consumed with a high degree of effectiveness, thus protecting the populations. In contrast, in the areas where protein deficiencies are severe and well identified, the economic status of those in need of improved protein intake prevents the purchase of synthetic products to supplement such foods as corn, rice, beans, and other low-cost sources of calories. Another aspect of the problem that complicates the use of synthetic amino acids arises from the fact that several amino acids are usually deficient or imbalanced in the areas where protein malnutrition is severe. These include tryptophan, lysine, methionine, isoleucine, and threonine.

Obesity

At the risk of treading heavily where angels would prefer to tread lightly, perhaps a few comments are in order on our progress in understanding the problems of overweight.

The evidence grows steadily in support of the concept that in human diets the cholesterol content of food is of much less significance than the effect of excessive caloric intake, irrespective of the source of the calories. There is evidence that an excessive intake of fats may contribute to increased cholesterol formation in the body, because of the greater quantitative yield of the intermediate acetate groups. Present evidence is strong, also, that oils and fats with a high content of linoleic acid exercise a favorable effect in the direction of encouraging low serum cholesterol concentrations. On the other hand, carbohydrates are also known to furnish acetate groups at an intermediate stage; thus one cannot justifiably attribute excess cholesterol formation to fat utilization alone. Among the important fields that have not been explored adequately are: (a) the range of tolerable balances between saturated and trans types of fatty acids in proportion to linoleic and arachidonic acids that can be consumed isocalorically, without causing high concentrations of serum cholesterol; (b) the possible effect of intermediates, such as squalene, between the fatty acids and cholesterol; and (c) the basic question of whether short-term or long-term shifts in serum cholesterol concentration furnish a true index of the origin and course of atherosclerosis.

From both animal and human experimentation, it is reasonably clear that unsaturated fatty acids, such as linoleic, linolenic, and arachidonic, have a lower tendency to form cholesterol than the saturated fatty acids or the solid fatty acids that may result from heating or hydrogenation. With a well balanced diet, however, and without an excess of calories, all of the common edible fats appear to be well utilized insofar as tests are based on digestion and over-all combustion.

There are numerous gaps in the evidence, as in estimating how favorable or unfavorable the effect of oleic acid may be. This information will be especially interesting because of the high content of oleic acid in most of the edible oils and fats.

Neither can one make an adequate appraisal of the effect of different types of fat intake independently of the adequacy of the rest of the diet. For example, deposits of cholesterol, either in parallel with or subsequent to fatty livers (generally accompanied by other evidence of glandular disturbances), have been demonstrated to result from deficiencies of choline, vitamin B_6, inositol, methionine, and a number of other nutrients. At the human level we have almost no data for guidance in this area of overlapping factors in practical nutrition. Neither do we have adequate techniques for measuring the reversibility of cholesterol deposits in the areas of the body where it appears to be of greatest significance, namely in the arteries, heart, and brain. In view of the evidence from animal experimentation, however, and with reasonable allowance for variation from species to species, one should certainly be cautious about the use of reducing or weight-sparing diets that represent departures from an over-all balanced diet of high quality.

Bizarre or fad diets are not likely to be effective over a long period because few people will stay with them consistently. But more important still, they tend to be damaging in their encouragement of departure from well balanced diets and, unfortunately they may represent serious risks to health. Least of all can one condone the use of drugs for the suppression of appetite as a general measure for improving one's health. The American Dietetic Association should be congratulated on its forthright educational program in this respect.

Much has been said about the control or suppression of appetite as a means of weight reduction or weight control on the basis of regulating mechanisms brought into play by ingestion of a particular kind of food, such as fat, sugar, or protein. Studies

of this nature are of value in the field of physiology and medical practice, to be sure, but I think there is a tendency to overemphasize the importance of this kind of approach. It is evident in the experience of man that his appetite is roughly adjusted to maintain normal weight as a result of eating a wide variety of foods that vary greatly in composition. Fats, sugars, and proteins all play a part in the regulating process. Flavors, odors, and the physical environment are also important.

New Trends in Dealing with Obesity

Recent reports from Cornell University, Harvard University, and other groups have highlighted certain points of special interest in studies of obesity. The first is that most patients or individuals who are well-balanced emotionally and have a good sense of general discipline can be expected to cooperate effectively and accomplish weight reduction on a satisfactory basis. But, as one approaches the other extreme in which about one-third or one-fourth of the individuals make practically no progress, one finds an increasing incidence of emotional instability and hence less capacity for a disciplined course of action. It will be interesting to see how the organization known as "Calories Anonymous" will compare with "Alcoholics Anonymous" after a record of say, five or ten years.

A second feature of the new findings is with respect to the early age range in which obesity becomes established as a pattern of living. Prolonged tenure in this nonacademic status makes it difficult to change. I believe this is an aspect of nutrition that merits much more serious consideration than it has had. Most people have been inclined to be nonchalant about overweight among children, whereas this may represent one of the most constructive opportunities for health improvement.

A third type of trend observed in the recent Harvard studies was the tendency for obesity to be associated with physical inactivity in younger people. This represents a complex problem, of course, because it is difficult to say which comes first—too many calories without exercise or too little exercise at the normal level of caloric intake. A questionnaire among the boys on this score might be of interest. Did the girls dance less because they were fat or did they get fat because they danced less?

It is encouraging, however, to note that there was some evidence that increased physical exercise did not necessarily tend toward a continued excessive intake of calories (13–24).

Special Problems with Children

Among the most interesting advances in recent years have been those based on attempts to improve the health of children who have come into the world handicapped genetically but nevertheless amenable to decided improvements in health on the basis of special dietary care. The so-called inborn errors of metabolism create special problems for diagnosis and diet therapy in a number of instances. One of the first instances of this kind to be well identified was the tendency to be susceptible to diabetes. The importance of nutrition in these instances has long been recognized. In the three following examples early discovery of the conditions can lead to effective medical care and feeding practices that are of great benefit, once a correct diagnosis has been accomplished. The genetic factors are recessive, and there is some hope that improved nutrition of the mothers even during gestation may give the children a better prospect of health on the basis of improvements in prenatal care.

(a) Reports from the National Institutes of Health and other laboratories on galactosemia or poor tolerance of milk sugar included identification of the condition as a metabolic fault, and on that basis decided advances were reported in protecting child health. Severe and neglected cases, on the other hand, result in early liver and brain damage, eye injury, and death. Mild cases may show only slightly lower capacity to utilize either galactose or milk sugar. Hence, by avoiding appreciable quantities of galactose in the diet before the injuries become irreversible, the youngsters have a much better prospect of developing as normal children (25).

(b) A second and more frequent genetic abnormality is represented by the condition classified as cystic fibrosis. Earlier studies of the disease placed primary emphasis on the failure of pancreatic function, whereas more recent work, for example at Harvard (Dr. H. Shwachman and co-workers) and at Columbia University (Dr. Andersen and associates), has demonstrated more clearly the genetic nature of the disease and has led to improvements in both diagnosis and therapeutic treatment.

It is evident that the failure in pancreatic function is only one manifestation of a general impairment of the function of mucous membranes in the entire organism. The result may vary from mild to fatal disturbances. In the mild cases, dietary treatment can be applied with considerable success. Both Andersen and Shwachman report that diagnosis can be established with reasonably good precision and promptly as a result of a simple test for excessive salt excretion. A simple test consists in pressing the finger tips onto a gelatinous layer containing silver salts which give a reaction immediately to excessive salt in the perspiration. The parents of these afflicted children have joined with others in forming a national society to support research on the disease. Their efforts merit encouragment (26–31).

(c) A third disease of this general type, on which substantial advances have continued is celiac disease. The condition is usually characterized by diarrhea and other severe disturbances after eating wheat or

rye products. You may recall that the disturbance from these food products was first identified as coming from the crude protein. More recent work has shown that the symptoms result primarily from an abnormal metabolism of glutamine (a derivative of glutamic acid) from the protein gliadin. Hence a blood test for an excess of glutamine furnishes a basis for differential diagnosis from the other diseases such as sprue. It also furnishes a guide for the dietary protection of patients (32).

The Search for New Vitamins

New vitamins continue to be sought in a number of laboratories, and there is some evidence that one or more new vitamins remain to be identified. On the other hand, the divergence in findings among the different experimental groups continues to be disturbing and creates uncertainty. The Texas (Couch and colleagues) and the Cornell (Norris and coworkers) groups, for example, believe that there are new vitamins to be isolated from liver, fish, and other food products. The recent evidence has been confused in part, however, by overlapping mineral deficiencies and imbalances among the known vitamins and amino acids (33, 34).

Misleading Reports

Recent press reports arising from Rome, where the International Union against Cancer held its latest session, may have come to your attention. In any event, as nearly as I can ascertain the facts, the press reports gave a distorted picture of the situation that exists with respect to chemicals in foods in the United States now or at any time within the last half century. Several sections of the report were untrue and biased, both by direct statement and by implication. Apparently, the press report was given out by one or more individuals on the basis of a manuscript that had been prepared by a group attending the conference but which had not and still has not had authorization for release by the Executive Committee of the organization. As a matter of fact, the persons responsible for enforcement of the Pure Food and Drug laws and for management policies in the food industry in the United States have worked with relatively efficient cooperation since the "pure food" laws were passed in 1906, so that we have consistently had one of the best protected and safest food supplies in the world.

To be sure there is need for further study and modernized legislation to deal with changing situations in the food industry. However, these continuing needs for research and legislation are primarily in the nature of precautionary measures rather than evidence of negligence or serious risks with respect to our public food supply. In short, there is no evidence that the American food supply is either currently or has been in recent decades, a source of cancer-producing chemicals. To give valid authority to this statement, let me quote from a recent paper (35) given by Bradshaw Mintener, who has just retired from his position as Assistant Secretary of Health, Education and Welfare. He says:

"My attention has been called to the recent news reports on the Symposium of the International Union against Cancer which was held in Rome last month. Some of the statements in those reports were quite alarming. The U. S. Food and Drug Administration is on record that it does not know of any food additive presently used in the United States that causes cancer. If it had any evidence of such, it could and would take immediate action under the existing law to stop the use of such a chemical. The Food and Drug Administration continues to regard the American food supply as the best and safest in the world, and these FDA scientists, having had more experience with this matter of chemical additives than those of almost any other country, should know what they are talking about. Considering their limited resources, both financial and legal, they have done a magnificient job. Second, it should be made clear that the American food and chemical industries have cooperated voluntarily to protect the public, and without compulsion by any law have done a vast amount of scientific research to insure unquestioned safety of the majority of the additives now used. Furthermore, these industries are on record in support of legislation to make mandatory the present voluntary clearance program."

Unfortunately, the individuals whose names were prominent in the news release were members of the staff at the National Institutes of Health and hence the misrepresentation in the reports carried more weight than would otherwise have been true.

Fluoridation and Dental Caries

Opponents of fluoridation continue to introduce the usual types of opposition based chiefly on faddism, fear, ignorance, and distorted claims. Nevertheless, the fluoridation program has been advancing steadily so that we now have a record of approximately 26 million people receiving fluoridized water, in 1293 communities, as of May 1956. The effectiveness of the practice has continued to show an accomplishment in the range of 50 to 70 per cent decreases in the incidence of tooth decay among children whose teeth are in the formative stages. There is evidence, too, that the gains established during childhood are permanent in their protective role through the balance of the life span. This accomplishment has been made without any evidence of risk and at an extremely low cost in proportion to the gain in health. One should note that not a single group of persons trained in public health, nutrition, or related professions has expressed opposition to the fluorida-

tion program. In contrast, nearly all have strongly endorsed the practice as it is being developed (36).

From a research point of view and as a matter of practical importance, there is additional evidence this year that other mineral elements not yet clearly identified can make a substantial contribution to protection against dental caries, beyond the role of fluorides and the other elements thus far identified. Practical sources of these extra mineral intakes are furnished in our recognized protective foods, such as meats, leafy vegetables, and whole grains. Hence there is sound reason to emphasize the importance of an over-all good diet as being an important factor in protection against tooth decay. The element, vanadium, which has been reported to exercise a protective effect, continues to be difficult to evaluate on this score, because of the risk of toxicity in tests with animals. Phillips and co-workers are reporting their interesting discovery of a new type of organic material in foodstuffs that exerts a protective effect against dental caries in experimental animals.

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Effect of Food Preferences on Nutrient Intake[1]

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Do food dislikes seriously interfere with adequate nutrition?

WHY ARE SOME people less well fed than might be desired? Dietary and nutritional status studies of recent years in New York State show that we are dealing with an essentially well fed population, but there are some individuals and some families who are less well fed than might be wished (1–3). Why is this true? Our studies in the past eight years have shown that economic circumstances in many instances are not responsible (4, 5). Recent surveys show that the homemaker's performance in feeding her family is related to her nutritional knowledge (6). It seems likely that lack of information on the part of the homemaker as to what to feed her family may account for at least some of the less-than-desirable food intakes reported. Also, in a study of older industrial workers, the worker's educational level was shown to be more closely related to the adequacy of his food intake than was his income (5).

Another explanation frequently given for poor food intakes has been the food dislikes of the individual. Sometimes even nutrition educators have been guilty of considerable propaganda on the dire influence of food dislikes on the nutritional welfare of the individual. Yet there is little scientific evidence in the literature on this point. For greatest social acceptance, particularly as a dinner guest, it may be desirable for an individual to minimize his food dislikes; however, from a nutritional standpoint, food dislikes become important only if they seriously interfere with the adequacy of his nutrient intake. It seems possible such interference would occur only in those individuals with many dislikes or in the case of dislike of certain rather key foods. In most instances, excessive food dislikes have been associated with neurotic tendencies or immaturity (7–11), in which case the basic problem is not one for solution by the nutrition educator. Is the adequacy of the average person's nutrient intake related to food dislikes? If the influence should prove to be minimal, would it not be far better nutritional education to "allow" people to have their own special food preferences without prejudice, just as we expect them to follow their own preferences in such items as clothes and housing?

Most studies which have been made of food preferences have been concerned only with a listing of the preferences and have not in general related the preferences to dietary adequacy (12–19). In these studies the foods expressed as aversions or definite dislikes are often not ones which are used in most diets with a sufficient degree of frequency to have their omission a matter of serious concern from a nutritional standpoint.

These reflections led to a study of the relationship between food dislikes and other factors leading to food rejection and the adequacy of nutrient intake in a group of entering college freshmen women living in residential halls at Cornell University. Such a group seemed suitable for our purposes for several reasons. The dormitories represent a controlled feeding situation with relatively small choice of menu items. The lack of freedom to substitute for less well liked foods should magnify the effect of any food dislikes on the nutrient adequacy of the diet. Also, through the dietitians in the residence halls we had access to precise information on the food available to the girls. Furthermore, women, particularly adolescent girls, have been shown to have more food dislikes than men (12–17, 20), while at the same time the adolescent girl is recognized to be one of the least well fed members of the population (1–3). Thus the group should be a good one to offer a demonstration of the effect of food dislikes on nutrient in-

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take. Of course, in a college dormitory, the basic menu from which choices are made is likely to be a good one. The women were studied early in their freshman year while food preference still carried the varied impacts of home influences.

One of the few studies which has been made in this area was that of Lamb and McPherson (21). A large group of college women living in a residence hall, when given free selection of available foods with some guidance as to what constitutes an adequate diet, chose diets adequate in all nutrients. In a subsequent study, Lamb *et al.* (22) surveying the food preferences of 170 college women found that foods disliked were also those foods which are "seldom or never eaten." For most girls, enough foods from each essential food group were liked so that an adequate diet was possible.

Methodology

Freshman girls living in the dormitories were chosen at random by contacting by personal letter every fourth such girl listed in the student directory. Of the 145 girls so contacted, 90 responded and 81 completed all the necessary records.

The girls ranged in age from 16 through 19 years, the mean being 17.25 years; the median, 18. Heights ranged from 60 to 70 in. with a median of 65.5 in. Weights covered a range of 100 to 169 lb., with a mean and median of 128 lb. The subjects were from the various colleges on the campus: 49 per cent, Arts and Science; 46 per cent, Home Economics; and 2.5 per cent each, Agriculture, Architecture, and Industrial and Labor Relations respectively. The distribution is fairly representative. About two-thirds came of relatively small communities, one-third from large urban areas. Two-thirds were from New York State; one-third, from twelve other states.

THE RECORDS

The girls were told of the purpose of the study in terms of our interest over a period of years in what college men and women eat and that we were particularly interested in what freshmen eat and some of the things which influence their eating habits. The girls were told that the information gained from their cooperation would be useful in counseling students with nutritional problems. They were then asked to keep a record of all food and drink taken for one week. Instructions were that everything taken by mouth and swallowed, except water, should be listed, as well as the time and place of eating. At the same time, the menus served to the girls together with information pertaining to recipes and size of servings of various foods were furnished to the research staff by the dietitians.

At the end of the seven-day period, the girls returned for an appointment with a member of the research staff who checked the record carefully with the girl for completeness and specificity.

The girls were then asked questions designed to obtain information on the factors other than food dislikes which might be restricting food intake; these included such influences as religion, health, and "dieting" restrictions. They were also asked what foods they especially disliked and would not eat under any circumstances; what foods they would eat occasionally if served but would not choose; and details on the influence of method of preparation on food preferences. During the questioning, age, weight, home town, and college of each girl were recorded.

The subjects were then given a list of 185 food items, including all of those usually served in the dormitory, and were asked to check for each item the column best suited to their reaction to that particular food. The choices available were: "will not eat because dislike it or it disagrees with me"; "will not choose, but will eat when served"; "will eat occasionally"; "will eat frequently"; "other—please explain (use this column also for comments)."

The seven-day food records were calculated for calories and nutrient content by the Babcock method (23). Responses to each oral question were tabulated in terms of the percentage of individuals showing each type of response. Further sub-tabulations were made of details of the responses. The written check-list responses were similarly summarized.

STUDY OF INTERRELATIONSHIPS

Relationships between the adequacy of nutrient intake and food dislikes were studied in the following manner. First, the nutrient intakes were examined to detect the major dietary weaknesses. The results of the two questionnaires were studied to detect major food dislikes. Comparison was made of the similarity or lack of similarity of food reactions as obtained by the oral questionnaire and the written check-list, and the effect of food dislikes on nutrient intake was studied. Responses to the oral questions were examined for effects that factors restricting food intake other than food dislikes would have on the adequacy of nutrient intake. A further factor considered was the extent to which food available, yet not eaten and not covered by either expressed dislikes, religious, health, or "dieting" restrictions, influenced the adequacy of nutrient intake.

Results

In Table 1 is presented the percentage of girls meeting various levels of the National Research Council's Recommended Dietary Allowances for sixteen to twenty-year-old girls (24). In general, the nutrients where the girls were least likely to meet allowances or where intakes were below desirable levels were calcium, iron, and thiamine, particularly. If an intake below 70 per cent of the allowances is arbitrarily taken as an undesirably low one, we find that 28.4 per cent of the girls had calcium intakes below this level; 25.9 per cent, iron; and 14.9 per

TABLE 1 **Percentage of girls meeting Recommended Dietary Allowances**

PERCENTAGE OF RECOMMENDED ALLOWANCES	PERCENTAGE OF GIRLS								
	Calories	Protein	Calcium	Iron	Vitamin A	Ascorbic acid	Thiamine	Riboflavin	Niacin
100% or more	34.6	69.1	28.4	13.6	90.1	93.8	32.1	74.1	77.8
99–90%	28.4	11.1	14.8	18.5	3.7	2.5	18.5	6.2	8.6
89–80%	16.0	6.2	13.6	18.5	4.9	—	27.2	9.9	8.6
79–70%	12.3	8.6	14.8	23.5	1.3	2.4	7.4	4.9	3.7
69–60%	3.7	5.0	11.1	17.2	—	1.3	9.9	1.3	1.3
59–50%	3.7	—	7.4	7.4	—	—	3.7	2.4	—
Less than 50%	1.3	—	9.9	1.3	—	—	1.3	1.2	—
Total below 100%	65.4	30.9	71.6	86.4	9.9	6.2	67.9	25.9	22.2

cent, thiamine. These would appear to be the areas of greatest weakness in nutrient intake.

ORAL INTERVIEWS

One of the principal purposes of the oral questioning was to learn some of the factors other than food dislikes which influence food intake. Religious influences did not appear to affect food selection of most of the students: 93 per cent stated no religious restrictions; 5 per cent did not eat meat on Friday or on fast days; 2 per cent followed the kosher food laws to some extent, such as on specific holy days or when at home.

"Health" restrictions were a more important consideration with 38 per cent of the sample listing one or more foods rejected for reasons of "health." Several items were rejected by 13.5 per cent; while 24.5 per cent had only a single food rejection on this basis. Among the reasons given were "skin health"; "nauseating effects"; "made me sick as a child"; "gas formation"; "constipating"; and "doesn't agree with me." Included among foods listed were chocolate, fat and fried foods, so-called "gas-forming" vegetables, spiced foods and, in two instances each, milk and eggs.

Thirty-three per cent of the sample stated that they were "dieting" to lose or gain weight. Various practices were mentioned, from limiting the quantities of all foods to specific food avoidances. For 13 girls, these included omitting potatoes and bread; for 13, sweets; for 4, all types of desserts; for 4, all "starchy" foods; for 3, milk and ice cream. Some mentioned such practices as using less potatoes and bread to make room for desserts and snacks between meals! Of the 25 girls following "dieting" restrictions to reduce, a comparison of their actual weights with a table of average weights for heights of seventeen- and eighteen-year-old girls (25) revealed that only seven would seem be overweight and need to reduce.

FOOD PREFERENCES AND DISLIKES

Sixty-four per cent of the girls named one or more foods disliked enough so that they would not eat them. Of these, the number of specified dislikes ranged from 1 to 13, with a mean of 2.7; the median, 2. Some 77 items were mentioned. However, only one girl mentioned milk; a dislike to each kind of bread was mentioned by only one girl each. No special aversion was noted for meat, fish, or poultry except liver which was mentioned by 7 girls. Eggs prepared in specific ways were listed by 5 girls, the emphasis being on the method of preparation, not on eggs as such. Most common fruits, including all citrus fruits, were not mentioned. The vegetables disliked most were: turnip, by 8 of 81 girls; winter and summer squash, by 6; Brussels sprouts, by 5; broccoli, cauliflower, and sweet potatoes, by 4 girls each. In addition to isolated vegetables, various kinds of cheeses, seafoods and shell fish, and "creamed" foods were the most disliked items.

A somewhat higher percentage, 81.5, of the girls had foods which they "would not choose but usually eat when served." Some 118 items were listed by 66 students. Of those who expressed such a reaction, the number of items mentioned ranged from 1 to 7; the mean was 2.6; the median, 2. Most foods were mentioned by only one or two girls and were mostly strong-flavored vegetables, seafood, and organ meats. Milk was mentioned by one girl; bread by no one.

Sixty-three per cent of the girls cited instances in which the method of preparation influenced their acceptance or rejection of food. By far the greatest reaction was concerned with specific methods of preparation of eggs. Certainly for eggs, more than any other food, preparation was a matter of individual preference. For any given person, if eggs were available in preferred form they were eaten; if they weren't, they were rejected. Though in general, scrambled, fried, and hard cooked eggs seemed most popular and soft cooked eggs most disliked, it was strictly a matter of personal preference which seemed to be concerned largely with the state of congealment of the yolk of the egg.

Other forms of food preparation particularly disliked were creamed and breaded foods and certain strong-flavored vegetables when cooked, though they would be eaten raw. Eggplant in any form except fried was taboo.

WRITTEN CHECK-LIST

The most disliked foods, i.e. those checked "will not eat" on the check-list of 185 foods, included buttermilk, oysters, turnips, green and ripe olives, heart, mushrooms, canned figs, pumpkin, cooked celery, soft-boiled and poached eggs, tongue, parsnips, and pimiento. These foods were rejected by 20 to 55 per cent of the girls. Twenty-nine items, including liver, cottage cheese, oatmeal, several strong-flavored vegetables, among other foods, were rejected by 10 to 19 per cent of the girls.

Fifty-two items were not disliked by any of the subjects and included such important items as pot roast, beef stew, hamburgers, Swiss steak, beef roast, lamb, veal, chicken, potatoes in several forms, white bread and rolls, orange juice, oranges, cherries, peaches, pears, pineapple, grapes, apples, bananas, corn, peas, lettuce, raw carrots, and ice cream.

Space does not allow documentation of reactions to specific foods in all the categories from "will not eat" through "willing to eat frequently." However, the foods of lowest acceptability in the latter category were those most often rejected in the "will not eat" category and vice versa. It is not surprising, of course, that the foods of highest acceptability are also the foods most commonly served; those most disliked and of lowest acceptability are the ones less commonly used. With one exception, our list of disliked items corresponds closely with those of Leverton (15, 17); Wallen (7, 8, 14); Hall and Hall (13); and Eppright (16). The presence of eggs as an intensely disliked item, especially on the check list, is peculiar to the present study. However, it is clear from both the responses to the oral questioning and to the written check-list that the real problem is one of very individual definite preference with regard to preparation, not a dislike of eggs.

Foods disliked by a sizeable percentage of subjects were also high in the list of "never tasted" items. They were apt to be unfamiliar, seldom-served foods. Hall and Hall (13) and Eppright (16) have reported similar findings.

COMPARISON OF ORAL RESULTS AND WRITTEN REPLIES

There was a consistency in the responses to the written check list and oral questioning as to the most disliked foods. However, less food dislikes were expressed in the oral than in the written response: only 77 versus 177 items. This may be due to the fact that it is difficult to give a spontaneous oral report on food dislikes; probably only the strongest dislike will be recalled immediately. However, with the written check-list of 185 items suggested and with more time for reflection, it might be expected more disliked food items would occur to one. Such was the case, for in contrast to a median of 1 and mean of 1.7 food dislikes per girl in the sample revealed by the oral interview, the written check-list yielded a mean of 11.0 and a median of 6 food dislikes per girl. Similarly, differences were found with respect to the "would not choose but will eat" category. With the check-list, the mean was 23.8; the median, 22 per girl; with the oral interview, the mean 2.6; the median, 2. However, the kinds of foods and indeed in many cases the specific foods themselves shown as "dislikes" were the same by both methods.

One other source of information was available to us on food preferences and usage which may be too important to be ignored, i.e., the use of certain "choice" foods. By "choice" is meant that these foods are not automatically served to a girl, but are available if she chooses to use them. They may be foods for which no strong dislikes are expressed; yet usage or failure of usage and inadequate amounts may play an important part in determining the adequacy of nutrient intake. These foods include: milk, cocoa, ice cream, eggs, citrus fruit and juices, hot and cold cereals, white and whole wheat breads, special rolls and breads, jellies, gravies, cream, and sugar. Table 2 gives the availability and the use made of these foods during the week of observation.

RELATIONSHIP BETWEEN NUTRIENT ADEQUACY AND FOOD PREFERENCES

Food restrictions on a religious basis had little effect on the nutrient adequacy of the diet. In only two instances did food limitations assigned to "health" restrictions exert noticeable effect. Both involved the failure to use milk, either because of its "constipating" or "nauseating" effects, and resulted in calcium intakes below 50 per cent of the allowance.

In studying the influence of "dieting" on food intake, it was obvious that several girls were in need of guidance with regard to undertaking weight reduction. Most of the girls who were restricting food intakes because of dieting seemed inclined to restrict sweets of all kinds, bread, potatoes, ice cream, and fats and oils. In most instances, these self-imposed dietary restrictions did not seem to influence seriously the adequacy of intake. However, in a few instances even when weight did not appear to warrant reduction there was a definite effect. Obviously more guidance with regard to weight reduction is needed to prevent sometimes useless and ineffective food restrictions. Approximately 10 per cent of our subjects were following ill-planned dietary restrictions to reduce or maintain their weight, which affected the nutritive adequacy of the diet.

On a group basis, expressed food dislikes did not seem to have any effective influence on the adequacy of the diet. As in previous studies, the verbalized food dislikes were primarily items which do not appear in menus frequently enough to have their omission seriously affect the nutritive adequacy of the diet. Perhaps eggs are the one exception to this statement. Here the problem is actually one of need for individualized preparation since it is the method

TABLE 2 Availability and use of "choice" foods

FOOD	SERVINGS PER WEEK			
	Available	Used		
		Range	Mean	Median
Milk	21 or more	0–21 or more	14.2	15
Cocoa	14	0–10	1.1	0
Ice cream	8	0–8	4.0	3
Butter	21	0–16	7.0	7
Light cream	14	0–12	2.0	0
Eggs	7	0–7	1.8	1
Citrus fruit or juice	8	0–8	5.8	6
Sugar	21 or more	0–11	2.4	1
Jam, jelly, sirup	10	0–6	2.3	2
Gravy	4	0–4	2.2	2
Potato	8	0–8	5.9	6
Hot cereal	2	0–2	0.1	0
Cold cereal	7	0–7	1.0	0
White bread	21 or more	0–8	2.8	2
Whole wheat bread	21 or more	0–5	0.7	0
Special breads	3	0–3	1.8	2
Rolls (including sweet) and doughnuts	9	0–9	4.3	5
Pancakes	2	0–2	0.8	1

of preparation rather than the eggs themselves which causes rejection. It would appear that we need to look elsewhere for an explanation of poor nutrient intakes.

Perhaps one of the main factors which may have influenced nutrient intake was the use made of "choice" items on the menu. We have found that calcium, iron, and thiamine were the least adequate of the nutrient intakes. The most likely explanation for these "less than desirable" intakes may be the indifference of the girls to certain of the available "choice" food items or to using them in sufficient quantities, items such as milk, bread, cereal, eggs, and potatoes. The foods are available and are not used in the available quantities, yet the girls do not list them as disliked foods. Of 21 or more servings of milk available weekly per girl, the average number of servings used was 14.2. Of 7 eggs offered per girl per week, the average used was 1.8. Use of bread and cereals was even lower in proportion to the availability (Table 2). Yet the use of more milk would increase calcium intake; the use of more eggs, cereals, breads, and potatoes, iron intake; the use of breads and cereals, thiamine. Furthermore, the increased use of all of these items would increase protein and riboflavin intakes. The one girl with an ascorbic acid intake below 70 per cent of the allowances chose only one serving of citrus fruit out of the available eight, yet did not list citrus fruit as a disliked food.

Thirty-two of the 81 girls had dietary intakes below 70 per cent of the allowances in one or more

TABLE 3 Relation of nutrient inadequacies, dietary omissions, and food rejections

GIRLS USING BELOW 70% N.R.C. ALLOWANCES (24)	PRINCIPAL NUTRIENTS	AVAILABLE "ESSENTIAL" FOOD SOURCE OF NUTRIENT	GIRLS USING LESS THAN AVAILABLE QUANTITY	GIRLS REFUSING "ESSENTIAL" AVAILABLE FOOD	
				"Health" reasons	Dislike
23	calcium	milk	23	2	1
20	iron	egg	18	2	1
11	thiamine	bread and cereals	11	0	0

nutrients. Ten of these were girls who were "dieting" at the time or had been. As shown in Table 3, the intakes of 23 were low in calcium; 20, in iron; and 11, in thiamine. Of the 23 girls with less-than-desirable calcium intakes, all used less milk than was available, yet only three indicated milk as a food restriction, two because it disagreed with them and one because she disliked it. A similar situation existed with regard to iron. Eighteen of 20 with low iron intakes either omitted eggs or used considerably less than were available, yet, again, only three (two by reasons of "health" and one by dislike) had indicated any restriction. It is true, however, that more than this number had definite preferences in regard to the preparation of eggs. Of the 11 girls who did not have an intake of thiamine as high as 70 per cent of the allowances, all had excluded bread and cereals although they had not expressed dislike for these items.

In practically every instance of low calcium and iron intakes the addition of one or two glasses of milk and one egg a day would have increased nutrient intake to a satisfactory level. In the same manner, use of more of the available bread and cereals would have met thiamine needs.

Thus the solution of the less-than-desirable nutrient intakes in this group at least would seem to be an educational program aimed not at combating food dislikes but rather at emphasizing the importance of certain foods which often appear as "choice" items at the meal. A need for sound weight control instruction was also indicated. Some of foods left to "choice" might also be incorporated into the menu more so that their intake would be less likely to be left to chance. We are not dealing with food dislikes, but rather with food indifference or misinformation. Also, the opportunity to have eggs prepared according to personal preference should greatly increase their usage.

It would be interesting to see this type of study extended to other population groups.

Summary

The influence of food dislikes and certain other factors on the adequacy of the nutrient intake for a seven-day period of 81 Cornell University freshmen women was studied by means of: seven-day food records, an oral interview concerned with factors

causing food rejections, a written check-list of 185 food items, and determination of the use of available "choice" foods, i.e. those usually available if chosen but not automatically served to each girl.

Calcium, iron, and thiamine were the nutrients for which the highest percentage of girls had intakes below 70 per cent of the Recommended Dietary Allowances.

In general, religious food restriction did not influence the adequacy of the diet. "Health" and "dieting" restrictions had little influence on the adequacy of nutrient intake on a mass basis, but this was not true in individual cases. It was obvious that there was need for guidance with regard to sound principles of weight control.

Contrary to common belief, food dislikes seemed to have little influence on the adequacy of the diet because most intensely disliked foods are commonly "seldom served" food items.

The greatest effect on adequacy of nutrient intake seemed to lie in lack of ingestion in sufficient quantities of the "choice" food items, such as milk, bread and cereal, and eggs. These items were rarely mentioned either during the oral interview or on a written check-list as strongly disliked by any of the subjects.

The solution to the less-than-desirable nutrient intakes in the population group under study would seem to be an educational program, aimed, not at combating food dislikes, but rather at emphasizing the importance of selecting certain available "choice" foods and at sound weight control information.

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Dextrin as Aid to Vitamin Utilization

The type of carbohydrate in the diet can make a difference in animals' utilization of biotin, according to research done at the University of Wisconsin by Drs. Dorothy Jutton and Helen T. Parsons. Animals were fed diets containing raw egg white and dextrin and raw egg white and sucrose. Those receiving the dextrin-egg white diets had better growth and showed fewer symptoms of biotin deficiency.

The problem remains of how the dextrin makes possible the use of the vitamin. It could be that dextrin reduces the binding power of the raw egg white, or it may stimulate microorganisms to make more biotin under these conditions, or it may allow the animal to absorb more of this vitamin.—*From What's New in Farm Science. Annual Report, Part 1, Bull. 518, Wisconsin Agricultural Experiment Station, January 1956.*

Sodium-Restricted Diets[1] *—A Bookshelf*

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AS AN AID in the treatment of certain diseases, the therapeutic usefulness of diets restricted in sodium is well known. Increased knowledge and interest in the use of these diets has demanded and brought about new and improved methods for determining sodium content of foods and fluids. The dietitian, confronted with the problem of planning adequate diets containing 500 mg. or less of sodium, is constantly searching for more reliable sodium values in foods. A number of investigators have provided tables of the sodium content of foods which have permitted more accurate calculation of this element in the diet. The dietitian also seeks ways to improve the preparation of these foods for a patient's acceptance and pleasure, since a change in eating habits is usually essential for the individuals using this diet. Some materials for the instruction of patients in the planning and preparation of restricted sodium diets have become available.

In the belief that such information would be of value to dietitians and physicians, as well as others concerned with the care of individuals on a restricted sodium regimen, this review of some of the easily available printed materials on tables of sodium values, on low-sodium recipes, and meal planning booklets has been compiled. This review does not attempt to cover all such material. Its principal usefulness will be to serve as an introduction which will encourage the reader to search for newer materials currently appearing in the literature. The *Cumulative Book Index*, the *Index to the Publisher's Trade List Annual*, the subject indices to six volumes of this JOURNAL, in addition to publications submitted by individuals, were used as source material for this review.

In general, the recipe manuals published by physicians, dietitians, and health agencies are written for the patient who adheres to a restricted sodium regimen. In addition to low-sodium recipes, the books reviewed include other informative material, such as a number of quantitative, sodium-restricted dietary patterns, which should be of value to the physician in prescribing the diet; sample menu suggestions; tables of food values listing sodium content; a list of commercially manufactured low-sodium products and how they can be obtained; and general instructions for the management of the sodium-restricted diet. What constitutes an adequate intake of other nutrients is also explained. Some books include other diets, such as reducing regimens, and weight charts. Recommendations that the patient using such diets keep in close contact with his physician for evaluation and direction are usually emphasized. One of the dangers in the use of some of these books is the possibility that patients may follow too restricted a regimen, such as the 200-mg. sodium level, on their own. The continued contact of the patient with a physician cannot be overemphasized.

Sodium Content of Foods

In almost all instances, total sodium content of recipes and meal plans are based on calculated values obtained from food tables. The dietitian rarely has the opportunity to compare calculated values with actual analyzed values of food. The principal food tables used for calculations have been: *The Chemical Composition of Foods* by McCance and Widdowson (1); "Sodium and Potassium in Foods and Water" by Bills *et al.* (2); *The Chemistry of Foods and Nutrition* by Sherman (3); *General Biochemistry* by Peterson and Strong (4); and "Sodium Content of Commercial Spices" by Elvehjem and Burns (5).

The most recent publications include the newest compilation of sodium figures found in *Sodium Re-*

[1] Prepared at the request of the Nutrition Committee, American Heart Association.

stricted Diets—The Rationale, Complications and Practical Aspects of Their Use, National Research Council Publication No. 325 (6). Standard text books, such as *Nutrition and Diet in Health and Disease* by McLester and Darby (7); *Nutrition and Diet Therapy* by Proudfit and Robinson; (8) *Modern Dietetics* by Johnson (9); *Nutrition in Health and Disease* by Cooper, Barber, Mitchell, and Rynbergen (10); and the *Handbook of Diet Therapy*, compiled for The American Dietetic Association by Turner (11), also contain tables of sodium values of foods. These are taken from the original sources cited above.

Attention should be directed to the values given for the sodium content of foods in these tables. They represent several different methods. Some are derived through direct chemical analysis of the foods while others represent analysis by flame photometry. In some instances only a single sample of food was used. Other values are a compilation of figures obtained from various investigators. Because of the various methods employed and the natural variation in the composition of foods, the analyzed sodium content of a specific diet may not agree with calculated values derived from any one table.

A number of the books reviewed herein are of real value to the individual on a sodium-restricted diet who has a particular interest in food preparation. However, sodium values given with recipes should be considered only as approximations because of the variability of this element in all food materials. For example, Hulet (12) found that in thirteen diets calculated to contain 200 mg. sodium, analyzed values were considerably higher.

In addition to having the most recent and probably most comprehensive table of sodium content of foods, the publication, *Sodium-Restricted Diets* (6), contains much fundamental information of interest to the physician and dietitian on the use and planning of sodium-restricted diets. This publication should be in the possession of all those concerned with the prescription and basic planning of sodium-restricted regimen.

Cook Books

Among the many special cook books published is *The Low Sodium Cook Book* by Payne and Callahan (13). Cleverly written and designed, this book contains recipes applicable to all degrees of sodium restriction. The discussion sections are informative yet simple. A chapter on "Home Freezer Meals" describes preparation of a complete meal, method of freezing, and cooking directions. All recipes are said to be tested. Detailed descriptions of size of serving enable a reasonably accurate quantitative control of sodium intake by the patient. However, the accuracy implied by the sodium figures carried to one decimal place is not warranted. The table of sodium values is presented in a form easily understood by the non-medical reader. The authors suggest that the individual using this book use the "sodium count method" for daily routine eating, which may prove a difficult teaching procedure and will not necessarily result in adequate nutrition for the patient.

One of the first cook books published for sodium-restricted diets was *The Salt Free Diet Cook Book* by Conason and Metz (14). This book contains a number of menus at various levels of sodium restriction with low-sodium recipes patterned to fit specific daily menus. Most of the recipes are given in individual servings. There is less flexibility in menu planning by the patients and, therefore, a professional person should direct the use of this material.

The Special Diet Cook Book by Small (15), with an introduction by Dr. James R. Wilson, presents recipes and dietary patterns for a number of therapeutic regimen. One section deals with recipes for the sodium-restricted diet and makes suggestions for improving the palatability of the diet. Many of the recipes call for herbs, spices, and wine, thus providing ideas on how to achieve variety and flavor in food. Most of the recipes are for four, six, or eight servings. Caloric and sodium values for single portions are given in each instance. For the severely restricted diet, discretion in the selection of recipes is necessary. Several charts illustrate low-sodium foods, comparatively high-sodium foods, and high-sodium foods, but there are no tables of sodium values.

Similar information can be found in the book *Good Food without Salt* by Vaughn (16). The author prepared the recipes in this book for a member of her family. As in many other cook books, herbs, spices, wines, and lemon juice are used freely. Some of the recipes may be too complicated for wide use, and some of the flavorings will be unfamiliar.

Salt and the Heart by Yorke (17) is written for the lay public and deals with the principles and planning of the sodium-restricted diet. Values for sodium are those of Bills *et al.* (2). No recipes or detailed menu plans are included, and most patients would find it difficult to use the material without considerable guidance from a physician or dietitian.

Low-Sodium Diet—A Manual for the Patient by Rice, a physician, (18) is intended to supplement the physician's instruction to the patient. It provides an explanation of the diet; sources of sodium in the diet, together with classification of foods according to sodium content; menu plans for 200-, 400-, 700-, and 1000-mg. levels of sodium; detailed instructions for insuring adherence to the diet; and suggestions for preparing palatable low-sodium foods using any standard cook book. Many patients will find this book helpful, although it does not include recipes.

Gourmet Cooking for Cardiac Diets by Field (19) is a widely circulated book which contains many tempting suggestions for preparing attractive food for therapeutic diets. As the title suggests, herbs, spices, and wine are used liberally. There are, un-

fortunately, several inaccuracies. For example, the section on soups contains many recipes with meat broths as a base. It appears that in figuring the sodium values stated for some of these recipes the possible source of sodium leached from the meat in preparing the broth has been ignored. No reliable values for low-sodium meat broth are available. By applying a known value (56 mg. per 100 ml.) as described by Irwin (20), the amount of sodium per serving in some of the recipes would more than double the figure given. The chemical symbol *Na* is used without explanation, which would undoubtedly confuse the lay reader. However, the book should serve dietitians best as a good reference in menu planning.

References for Institutional Use

Two manuals for institutional use have been compiled. *The Problem of Restricted Dietaries with Special Reference to Low Sodium Diets* by Spinella (21) is a carefully prepared manual published as Report 107 by the Army Medical and Nutrition Laboratory.

The Low Sodium Diet Booklet (22), compiled by the Diet Therapy Committee of the Maryland Dietetic Association, is intended for use in institutions without qualified dietitians. A number of recipes for twenty-five servings are included. In reviewing the booklet, one questions the figures on yields for a number of the recipes. Several inaccuracies, in many cases typographical, mar the usefulness of this booklet. Three different dietary patterns of sodium restriction are carefully outlined, listing food groups to be included in gram weights only. It would have been helpful to the institution if suggestions had been given as to how the recipes could be incorporated in the suggested dietary patterns. The nutritional adequacy of these diets was not calculated either.

Booklets for Patient Instruction

Interpreting a sodium-restricted dietary plan to a patient who has only a hazy conception of food composition requires careful, detailed instruction. Errors occur frequently because the patient has not been provided with enough detailed information regarding his diet. Sodium sources in food have not been sufficiently stressed. Some standardization in methods of instructing patients is therefore desirable. The widely used method employing the plan of exchange lists of essential food groups for instructing diabetic patients provides an example of effective teaching. This method is illustrated in the booklet *Planning Low Sodium Meals* (23). First published by the Newton (Mass.) Health Department, it is now available from the Nutrition Foundation. Nine individual dietary plans and sample menus are provided. A limited number of recipes are designed to be used at any level of sodium restriction.

Another important booklet containing fundamental information is the publication *Food for Your Heart, A Manual for Patient and Physician* (24), published by the American Heart Association. It presents descriptions of the three levels of sodium restriction accepted by the American Heart Association as suitable for most therapeutic purposes. Also presented are simplified discussions of the rationale of sodium restriction, the importance of adequate intake of other nutrients and weight control, in addition to dietary patterns, meal plans, recipes, and helpful suggestions for flavorful food. The *Cook Book for Low Sodium Diets* by Reena Roberts Hasker (25), originally put out by the Massachusetts Heart Association and reprinted in 1955 by the American Heart Association, has a practical, positive approach toward the use of low-sodium diets.

Both the booklets, *Planning Low Sodium Meals* (23) and *Food for Your Heart* (24), are sufficiently complicated to need accompanying verbal instruction from a dietitian or physician before the average patient can use them to advantage. A special committee is now preparing new material to replace these publications.

Many state and local heart associations have published similar, but not as comprehensive booklets, such as *The Restricted Sodium Diet* (26) from the Los Angeles County Heart Association. In this pamphlet, the table "Sodium Content of Various Foods," constructed in an easily understood form, includes values for many commercial products. Units of measure are expressed in household amounts. Examples are given to show how to convert the patient's favorite recipes to a low-sodium content. Other informative booklets are *Low Sodium Diet Cook Book* by the Cleveland Area Heart Society (27) and *Food for Low Sodium Diets* (28) of the Chicago Heart Association. The latter lists commercially prepared low-sodium foods and is available only to physicians and dietitians; also, its use is limited to the Chicago area.

Diet therapy committees of state and local dietetic associations have compiled materials for use in planning restricted-sodium diets. *Cooking without Salt for the Low Sodium Diet* (29), by the Cincinnati Dietetic Association, and *Preparing Meals for the Sodium Restricted Diet* (30), by a committee of the Illinois Dietetic Association, are two examples.

These represent a wide variation in style, and one is encouraged to review as many as possible before developing his own instructional material.

Other Source Materials on Meal Planning

Of immeasurable value to the dietitian and physician is the Food and Drug Administration's low-sodium dietary food regulation on labeling of dietetic foods (31), which became effective September 29, 1954. Under this regulation, "dietetic foods" must be labeled with the number of milligrams of sodium per 100 gm. food and per average serving. Food manufacturers of dietetic foods have complied with this

regulation wholeheartedly, enabling consumers to control sodium intake more accurately. However, it should be emphasized that not all "dietetic foods" are suitable for all levels of sodium restriction, and, consequently, a patient needs guidance in interpreting the label. The booklet, *Dietetic Canned Foods* (32), published by National Canners Association, provides information on dietetic canned foods and labeling of such foods and is of interest to the dietitian.

The dietitian should watch for publication of a new book, *Dietetic Foods Annual—1956*, prepared under the direction of Dr. S. O. Waife, Editor-in-Chief of the *American Journal of Clinical Nutrition*. This will include foods which are low in sodium and other nutrients as well as other nutritional information to aid in preparing diets to meet specific requirements.

Summary

A review of sodium-restricted recipe manuals, cook books, meal planning booklets, and source material has been presented. No attempt has been made to include all available material, but rather to encourage the reader to use this report as an introduction to the wide variety of materials in use today. It is hoped that this review will stimulate the reader to search continually for and review newer material in a constructive, critical fashion.

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Fat Change during Weight Loss

During a twenty-four-day experimental period on 1000 calories a day, thirteen young white men lost a median of 8.3 kg., or 12 per cent of their original weight. Losses of subcutaneous fat ranged from 16 to 47 per cent of initial values and were clearly related to the initial thicknesses, those parts of the body with the thickest fat deposits sustaining the greatest loss. Also, individuals with greater amounts of fat to start with sustained greater losses in fat. Since fat is withdrawn in proportion to the initial amount present, relative fat patterns before and after weight reduction tend to preserve their individual characteristics.—*Abstracted from: Barn, S. M., and Brozek, J.: Fat changes during weight loss. Science 124: 682 (Oct. 12), 1956.*

A Pilot Study

Nutrition Counseling for Patients in a Community[1]

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WHEN A PATIENT must follow a prescribed diet for a long time, as is so often the case in chronic illness, he tends to become dissatisfied unless the dietary plan conforms fairly closely to his customary food habits. If he fails to understand the basic principles of the diet in relation to his total treatment, he has no real motivation to follow it. Since diet, in most instances, is only one part of the treatment, its beneficial results cannot be isolated and measured separately. Unless the patient realizes this, he may soon become discouraged and lose confidence in his diet. This frequently provokes the accusation that a patient is "uncooperative."

The patient at home is faced with the responsibility of filling the dietary prescription himself, day after day. "But how do I go about this for every meal?" he asks in bewilderment. Prepared diet lists and suggested menus answer some questions, but individual adjustments are inevitable. Each patient must understand how to fit a prescribed diet to his own everyday living. When a patient is put on a diet complicated by several limiting factors—a diabetic diet, for example, which is also restricted in sodium or fiber—he is not only confused but feels defeated from the start.

Modern processing methods complicate dietary management by the addition to foods of such seasonings as salt, fat, sugar, and spices. Highly advertised "special foods," which may or may not be required, are often bought unnecessarily. The patient needs information and guidance on these matters. He also needs help in interpreting labels on canned and processed foods. What should he do about packed lunches, about eating in restaurants? These and many other questions are familiar to every dietitian, nutritionist, and nurse engaged in this field of patient education.

It takes time, patience, and understanding of the whole situation to teach a patient to follow his diet accurately with some degree of satisfaction, and with a minimum of inconvenience to himself and his family. As Rittelmeyer emphasizes (1), it is necessary that the patient have sufficient detailed instruction, whenever needed, to enable him to cooperate.

The conditions and circumstances under which such instruction is given must therefore be conducive both to teaching and learning. Yet what hospital dietitian has not had the frustrating experience of dashing from the kitchen to instruct a patient while he was packing his bag to go home? As the importance of patient education becomes more widely recognized, however, more patients receive adequate instruction about their diets well in advance of the discharge date. Through other agencies in the community, follow-up in the home may bring additional counseling on dietary problems. However, in many communities such sources of help are limited or non-existent, and even in communities where these services are available, they are not used by all patients who need them.

Nutrition Service in Schenectady

To try out one type of community counseling service, the Public Health Service, in cooperation with the New York State Department of Health and the Schenectady City Health Department, conducted a pilot study during 1954–56 in Schenectady. Following approval of the proposal by a committee of the Schenectady County Medical Society, plans were worked out to offer a nutrition service to physicians through the Schenectady Health Department, with the assistance of a nutritionist assigned by the Public Health Service.

[1] This study was conducted by the Public Health Service, Department of Health, Education, and Welfare, through its Heart Disease Control Program, in cooperation with the Bureau of Nutrition, New York State Department of Health, and the City Health Department, Schenectady, New York.

This patient, whose diet must be restricted in sodium and fat, brought her favorite cook book to the nutrition conference, so that she could obtain the nutritionist's help in adjusting recipes to meet her dietary prescription

The long-range goal of the project was to assist the community in providing dietary counseling for patients. The immediate and major objective was to determine to what extent physicians would use this type of auxiliary service when offered through a local health department. Other objectives were to ascertain the kinds of problems patients face when attempting to follow prescribed diets at home and to determine the time required to give patients the individual help they requested.

Methods of Operation

The first step in setting up the service, that of introducing the nutritionist to local physicians, was done by the health officer. He would telephone five or six doctors, explain the pilot study briefly, and arrange for the nutritionist to visit them the following week. This method was continued until all general practitioners and specialists in diabetes and cardiovascular diseases had been reached. The purpose of the visits (in addition to getting acquainted) was to discuss the study with the doctors, give them an opportunity to ask questions about it, and learn their preferences as to methods of referring patients, making reports of patient conferences, and selecting diet materials to be used. Physicians could begin referring patients immediately after the nutritionist called on them. Patients were seen individually by appointment and only on referral. Appointments were made by the physician for the patient, or by the patient on instruction of the doctor. No fee was charged for the service.

In referring patients, some doctors preferred to write the dietary order on a prescription blank for the patient to take to his appointment. Most of them, however, preferred calling the nutrition service first to discuss the patient's dietary problems and outline the prescribed diet verbally. A few used a combination of these two methods; this was the most satisfactory to the nutritionist since it gave her both a verbal and written dietary order and advance information about the patient.

When a patient could not come for instruction, he usually sent a member of his family. If the patient was a man, his wife, mother, or sister frequently wanted help in planning his meals. Occasionally, husband and wife came together when one or the other was the patient. If the patient was ill and no family member could come, a home visit was made. This occurred, however, in only five instances.

Appointments were spaced at least an hour apart, since the majority of patients preferred to get all basic instruction at their first conference. If questions arose later, they were answered by telephone. No initial conferences, however, were held via telephone. Appointments for subsequent conferences were made, when required, with the doctor's approval. Some physicians preferred their patients to have only one appointment unless they referred them again. This was especially true in regard to patients on reducing diets. These physicians also preferred that patients return to the doctor's office for weight checks and follow-up. With others, it was agreeable that patients be seen, as needed, by the nutritionist, provided the dietary prescription had not been changed.

Conferences were held in the nutritionist's office in the City Hall where the Health Department is located. There was a disadvantage in having the service separated from the physicians, since it gave

little opportunity for building rapport, so important in developing any new service. On the other hand, there were advantages in holding conferences away from the doctor's office, hospital, or clinic, where many patients feel tense and apprehensive. Also, because of the individual appointment system, patients were not kept waiting and received all the time necessary to talk over their dietary problems.

The Patients' Problems

The kinds of problems with which patients needed help are well expressed in their own words comments, and typical ones are quoted here:

When the doctor explained in his office, I thought I understood everything. But when I got home and started to figure out what I was going to eat, I got mixed up.

****

I thought maybe you could give me some ideas for lunches and casserole dishes. Can't my husband have something like that? The diet sheet just has foods on it, but doesn't say anything about soups or stews or potato salad and things like that. Can't he eat those things? I don't know how to work it out that way.

****

They taught me all about the diet in the hospital, but I don't know; it seems as if I was so upset all that time, I just couldn't take it in. When I got home I didn't know what to do. I tried to remember what they had on my tray in the hospital, but I can't tell how they worked it out. For instance, custards, and one time some potato salad, and something like salmon and peas, and bread crumbs and egg, all mixed together. How could I work out something like that? It was good, but I can't figure it out.

****

You see I'm all alone. I live in a boarding house and get my lunch near the office at a cafe. Well, they are real nice to me, but they can't cook foods just for me. So how can I stay on this diet? What can I get at the cafe that I can eat?

****

I want to lose weight, but you know how it is when you have to go to all these luncheons and dinners. You can't just sit there and not eat, or ask for something else when it's all been planned what the menu will be. When you go to someone's home, you can't be impolite and not eat the food.

****

You see I'm not supposed to eat salt or anything with fat in it. I was hoping you could look at these recipes in my book and tell me how I can change them so as not to break the diet but still be able to make things the way I like them —that is, as much as possible the way I've been cooking. I understand it can't be *just* the same.

****

I didn't know margarine had any fat in it. I thought it was a butter substitute, the way saccharin is a substitute for sugar. The diet list said avoid all fats and oils, but I never realized.

****

It was bad enough just on the diabetic diet. But now with this ulcer business, it sure messes things up. You see, things I have been eating a lot of on the diabetic diet, I can't have on this ulcer diet. So what can I eat? My wife says it beats her how to cook for me any more. The doctor said you could get it all straightened out for me. I sure hope so.

TABLE 1 Reactions of 93 physicians to nutrition service

REPLIES	NUMBER OF REPLIES
From Physicians Who Referred No Patients to Service	
I have had no patients during the period the service was offered who have needed this type of help	30
I do not feel this type of service would be helpful in my practice	11
I have other sources of help in solving my patients' dietary problems	15
The availability of the service slipped my mind	28
I do not feel a service of this type should be given through a health department	3
I find it inconvenient to use a service which is located outside my office	6
I anticipate using the service in the future	28
I do not anticipate using the service in the future	15
From Physicians Who Referred Only One Patient to Service	
I did not find the service helpful to the one patient I did refer	0
I have had no other patients whom I felt needed this type of help	7
The availability of the service slipped my mind after the first referral	11
I found it inconvenient to use a service which is located outside my office	0
I did not like the nutritionist's approach to my patient	1
I probably will continue to use the service	12
I do not plan to continue to use the service	1
From Physicians Who Referred More than One Patient to Service	
I found the service	
Helpful to most of my patients	14
Helpful to some of my patients	1
Helpful to none of my patients	0
I have not yet had the opportunity to discuss the service with the patients whom I referred	0
I found it inconvenient to use a service which is located outside my office	0
I probably will continue to use the service	14
I do not plan to continue to use the service	1

Statistics on the Service

At the same time the nutrition pilot study was getting under way in Schenectady, a special diabetes program was being developed by a physician, a specialist in diabetes. As part of this program, diabetic patients received instructions about their diets. While more diabetic patients might have been referred to the nutrition service had they not been reached by this other program, the majority of those who were referred had diabetes.

During the operation of the service (November 1954–June 1956) seventy-eight patients were referred, of whom sixty-four made appointments. The types of diets prescribed for patients were:

Diabetic	22
Restricted calories	13
Multiple restrictions	11
Restriction in fiber	9
Purine restriction	3
Sodium restriction	3
Fat restriction	2
	63

Only one diet was prescribed for additional nutrients, high-protein, high-iron, and sodium restriction.

Following an announcement before the county medical society that the pilot study would continue for a second year, a questionnaire was sent to physicians, serving both as a reminder and as a means of learning their reactions to the service. Ninety-three of the ninety-four questionnaires sent out were returned.

Physicians who used the nutrition service reported that they were pleased with the counseling given patients and that they regarded it as a "valuable" and "excellent service." More than a third (36 per cent) of the ninety-four physicians who were visited and offered services of the nutritionist during the study, had referred patients. Thirteen was the largest number referred by any one doctor.

Responses also showed that the two principal reasons for not referring patients were: (a) the physician saw no patients during this time who needed help with diets and (b) the availability of the service slipped his mind. Some explained that they did not need outside help because they or their office nurse gave nutrition information to patients. One was concerned about "losing track of his patients" if he referred them, and another felt that a referred patient might think that the doctor was "trying to get rid of him." One physician who referred several patients, but who indicated on the questionnaire that he "did not like the nutritionist's approach to his patients," explained that one of his patients had been seen a second time without a second referral. This happened early in the study before it was decided to give patients second appointments only when requested by the doctor. A detailed breakdown of these reactions is given in Table 1.

Of the 130 conferences held, 104 were by visit and 26 by telephone. Initial conferences averaged an hour and a quarter, with a range of from 45 min. to 2½ hr. Subsequent conferences averaged approximately 15 min. All patients who made appointments kept them.

Summary and Conclusions

A one-year pilot study of a nutrition counseling service for patients in a community (Schenectady, New York) is reported. Objectives of the study were (a) to determine to what extent physicians would use this type of auxiliary service when offered through a local health department; (b) to explore the kind of help patients need in following prescribed diets; and (c) to estimate the amount of time required to give patients the counseling they requested.

Of a total of ninety-four general practitioners and specialists in diabetes and cardiovascular diseases in the community, 36 per cent utilized the service. An additional 32 per cent had no patients requiring help with therapeutic diets during this period. A questionnaire sent to physicians indicated their reactions to the service and gave reasons for use and non-use of the service. The problems concerning prescribed diets, about which patients sought the nutritionist's help, pinpointed the needs in dietary counseling. The total amount of time required to give patients the help requested averaged 1½ hr. per patient. Individual variation was, of course, considerable.

The immediate objectives of this research project were reached through a service of dietary counseling to patients in a community.

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When Is the Dietitian Acting as a Teacher?

A simple test can determine if a dietitian is acting as a teacher in any given situation. What is her attitude? Her professional contacts with those she serves, as well as with the staff of her organization, may be controlled by a desire for either passivity or domination. She is then acting entirely in terms of her own feelings and is not a teacher. Again, her desire may be only to provide technical information. She is then a kind of resource person, not a teacher. But, she may be concerned with making a contact profitable to the patient by developing his understanding of diet. She is then a teacher.

All teaching proceeds through several basic steps. The first is the selection of the goal. The dietitian sets up specific targets, the gradual attainment of which by her patients will lead to the general goal. The second step is organization of the subject matter. It must start with what the group or individual already knows, with each addition being made in terms of the material previously presented. The next step is the application of the best methods of presenting material to students, or patients. The final step is one of evaluation. The only true test is a follow-up of each patient's progress. When given free choice, does he choose wisely? —*From "A Study of Nutrition Clinics in Hospitals with Dietetic Internships" by Marion Jungas, Dietetic Intern, University of Minnesota Hospitals, Minneapolis.*

Outlook for Food Service Administration[1]

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DISCRETIONARY INCOME of Americans—that amount of disposable income remaining after subtracting food, clothing, housing, and other necessities—has increased sixfold since 1940. This is also an era in which people have approximately 1200 more leisure hours annually than their grandparents had (1). The old distinctions between luxuries and necessities change fast, and the luxuries of yesterday which have come to be the needs of today characterize the times. This is the "climate" in which the dietitian and food service administrator function today.

To express it another way, there are two kinds of factors governing what takes place in the institution. First, there are those, such as policies of the institution—the budget of the department, the controls practiced over food production and service, or the employees' training program—that influence results achieved by the manager. There is also a second group of elements over which the staff of the institution has no control, but which as surely as the first named factors, influence the operating results. These are the factors outside of the institution in the American economy that affect every person in the country. Some of these "external" elements specifically concern all individuals associated with administration and management of industrial, commercial, public, or private food service operations.

The business economy, consumer income, cost-of-living index, national employment and unemployment figures, wages and work week in industry, the AFL-CIO plans for the future, and employee productivity are all subjects of which the dietitian should be aware in making plans. Let us look at these topics briefly.

The Business Economy

People have more income than ever before and are in a spending mood. Business men are confident and are pouring money into new plants and equipment and into inventories of goods. Government is breaking all peacetime records for spending.

There are forecasts that a slowing of the boom will be noticeable in the first half of 1957, but that it will not be a drastic decline, and the long-term trend of business activity is still to be upward because the country is continuing to grow in population and in the capacity to produce the things people want and need (2). These are statements familiar to everyone.

The business trend is pictured best from figures on total spending for all types of goods and services—what the economists call "gross national product." This GNP figure includes what families spend for food, clothing, and housing; what business concerns spend to turn out products and expand their factories; and what government spends to provide services for citizens. Over the years, the rate of all this spending has moved steadily higher keeping up with the country's growth and rise in business activity and payrolls.

For the first six months of 1956, this total spending was at an annual rate of $405.9 billions. In the first half of 1957, total spending will move up to an estimated $420.1 billions, according to recent studies. That will set a new record, representing an increase of $14.2 billions over the rate of spending for the first half of 1956 (2). (A revision from these figures is evident, for the value of the GNP in this year's third quarter now is estimated at $414 billion.) The prediction is that the GNP will reach $850 billion by 1975, more than double the present figure.

A discussion of the business economy would be incomplete without reviewing recent actions of the Federal Reserve Board.

"The real answer to how far the rise in spending will go next year, and whether the boom will subside lies in the government's money policy. 'Tight money' affects the spending plans of business concerns as well as of householders. It costs more to

[1] Presented at the 39th Annual Meeting of The American Dietetic Association in Milwaukee, on October 12, 1956.

borrow to buy a house, a new car, a stove, or a refrigerator. Business men can't borrow as readily or as cheaply to add to inventories. . . Communities eager for new schools and hospitals are taking a second look at their plans because of higher costs of financing.

"The tightening of credit is a deliberate plan by the Federal Reserve's money managers to control the boom. Their aim is to keep price rises from getting out of hand, and to hold demands of labor and for goods within the ability of the country to produce" (2).

Personal Incomes

Personal incomes have hit a new annual rate. In virtually all segments of the economy except agriculture higher incomes have been paid individuals. U. S. Department of Commerce figures for 1952 show the average income per person was $1727 as compared with an estimated average income per person in 1956 of $1915. (3) In the U.S., the average income per person has increased by nearly 11 per cent in this four-year period. Wages, dividends, interest payments, business profits, government handouts—in short, all forms of income—have gone up. As yet, inflation has eaten away only a small part of the gain.

The gain in wages is not being shared uniformly. People in eight states have enjoyed a very sharp rise in income—15 per cent or more on the average—during the four-year period. People in twelve other states have made gains that are above the national average. But in twenty-one states and the District of Columbia, the gains in income have been less than the national average. Finally, there are six states in which the average income actually has declined. All of these are farm states in the Midwest and Rocky Mountain regions (3).

Consumer Price Index

The "consumer price index," sometimes called "cost-of-living index," is studied by federal, state and local governments in considering policies on taxes and on pay scales of employees. It also has become significant to employers, particularly because of the use made of it by unions in bargaining with employers over wages and salaries. While some unions have "escalator" clauses which call for wage increases whenever the index figures move upward and cuts when the index falls, the contracts provide for a floor under wage cuts but no ceiling on cost-of-living raises in pay. For more than a million workers with escalator-clause contracts, September 1956 brought wage increases, averaging $1.60 per week (4).

The index in August was 116.8, up 2 per cent from August 1955, which means the cost-of-living is about 17 per cent higher than the U.S. Department of Labor base period of 1947–1949 (5).

Employment

A new record has been set in the number of people in the labor force. A total of 66,752,000 persons held jobs in August 1956. This was a new peak for the third straight month this summer. August was also the third month in history in which employment pushed above 66 million. August was also the fifth month in which the total was above 65 million. That figure was surpassed by the record set in August 1955, and again in May 1956.

It is noteworthy that in 1945 the predicted employment figure for the future was 60 million. The present employment figure is 7 per cent above the employment record of July 1952 under the economic stimulus of the Korean War (6).

Although there was some drop in September to 66.1 million, it changed mostly in accordance with seasonal influences, such as summer workers returning to school and weather beginning to reduce outside work. While total employment for September was down seasonally from August, it was 1.3 million higher than a year earlier with the advance in the past year principally taking place in non-manufacturing industries (7).

An important factor in the increasing labor force is the larger number of women holding jobs outside of the home. Even though girls are marrying and having children at a younger age, in spite of the fact that household help has declined, there are now 50 per cent more women at work than in 1940 (8). More married women, although they have young children, continue to work, and more older women are returning to work after their families are grown. The current total of women in the work force is 21 million or about one-third of all persons employed.

The employment picture is well summed up in the statement, "jobs never were so plentiful, pay never so good, living standards never so high as they now are. The dinner pail not only is full, but for many workers it is close to overflowing" (9).

The number of jobless in August 1956 was listed at 2,195,000. In August 1955 the figure was 2,237,000. Unemployment for September was the lowest ever reported, 2.0 million, down about 10 per cent from August. The unemployment figure in the early fall of the year is the key to the labor market conditions rather than employment. Looking only at employment, there is no such favorable impression; the number of jobs declined 700,000 between mid-August and mid-September, but that, if anything, was less than usual (10).

Wages

Wage rates have been rising. The preliminary average hourly gross earnings of all manufacturing industries was $2 in September. In September 1955, the figure was $1.90. Hourly gross earnings have been edging up during 1956, beginning in January with a

figure of $1.93 (10). The wage settlement in the steel industry in 1956 lifted hourly earnings in manufacturing while rising output required the lengthening of the work week.

The weekly gross earnings in all manufacturing industries in September 1955 stood at $77.71 compared with a preliminary figure for September 1956 of $81 which is an all-time high.

A significant impact occurred on the economy when the new minimum wage rose from 75 cents to $1 last March 1. Two and one-tenth million workers received pay increases at that time. The average increase in wage, it was predicted, would amount to $5 per week. It thus put about $560 million a year of fresh money into circulation at the lower level of the work force, more than half of it in the South. The economists pointed out at that time that the new minimum wage rate would bring a "gentle upward surge in wage rates" affecting workers already earning more than $1 per hour (12). Other increases have followed for workers above the $1-an-hour level to maintain differentials.

In food and kindred products, 44 per cent of the workers in the South earned less than $1. The new wage rate affected and will affect food prices. For example, immediately after the new minimum wage went into effect, in a southern city dressed chickens were 1½ cents a pound higher because of the minimum wage rate.

In the latest reports for September, the minimum wage boost was extended to thirty-six more businesses working on government contracts.

The Work Week

Another consideration in an outlook for food service management is the subject of the work week and union demands. Labor unions which have won pensions, health insurance programs, and a start toward the annual wage are talking now of the next big demand to be presented to employers at the bargaining table: the shorter work year.

The importance of the subject has just been underscored by a conference held in September in Washington. More than a hundred research directors of unions affiliated with the AFL-CIO met to discuss "shorter hours of work" (13). These are the men paid by the unions to think ahead and set up goals. In any new union program, they are important in translating vague pressure of members into specific demands on employers. From a report of the meeting came a variety of ideas as to how the year's schedule of work could be reduced without cutting the income of the worker.

"Demands for a 35-hour week, or a 30-hour week, are among those on the list of possibilities. However, several new proposals are being considered by unions. Lengthening of week ends for workers is one of the suggestions advanced by the assistant director of research for the AFL-CIO.

"A year's leave of absence with pay is another new idea. It is proposed that this time off could be given when a worker reaches age 50 or 55, letting him travel or do other things he 'always wanted to do.'

"Six weeks of vacation a year, with pay, may show up on the lists of demands. Instead of the present system of vacations ranging from one week to three or four weeks, depending on service, it is suggested that everyone on the payroll get at least four weeks, with six weeks for the older employees" (13).

There is the belief among union officials that workers are not anxious to get a 30-hr. week, but prefer to take extra time off through vacations or to have more holidays.

This belief was expressed by the research director of the Pulp, Sulphite and Paper Mill Workers in the statement, "Aside from the workers' desire for their paid holidays and paid vacations, there is no evidence in recent experience that workers want shorter daily or weekly hours. The evidence is all on the other side. Workers," he finds, "are eager to increase their income, not to work fewer hours" (13). Even so, the officials agree, some unions are moving toward the shorter week, and some have it, as in the women's apparel and the printing trades.

In the view of the economist for the AFL-CIO research department, moves for the shorter week can be expected in industries that employ large numbers of women. His theory is "that women, especially working wives, want more time off the job to do their domestic chores." Also, he thinks the idea of a reduction in hours, when it comes, will be negotiated probably in small stages of 2.5 hr. or less at a time, rather than sweeping cuts to 35 or 30 hr. (13).

"These shorter work week plans may seem Utopian and fantastic today. But they'll be showing up seriously at the bargaining table in the future, and it will be the union researchers who prepared the blueprints" (14).

Labor Productivity

The United States Department of Labor reports steady gains of around 3 per cent a year in productivity, that is, the output of a worker for an hour's work. In the steel industry productivity jumped 11 per cent in 1955.

It has been pointed out by an officer in a large restaurant chain that the food service industry in the past has lagged behind most other industries in respect to output per man hour. Over the years labor costs in food service operations have risen more rapidly than has man-hour production. While the workers themselves may be somewhat responsible for this lack of progress, he attributes its chief cause to the failure on the part of food service enterprises to install enough labor-saving equipment. He also believes there is need to develop

even more efficient and productive equipment of this kind.

The subject of labor productivity is linked to the discussion of automation. Ralph J. Cordiner, President of General Electric Company, in his testimony before the Subcommittee on Economic Stabilization, Joint Congressional Committee on the Economic Report, October 1955 stated (15): "According to our company's estimates—and they are in line with estimates of your committee's staff—the United States will require 40 per cent more goods and services by 1965 with only 14 per cent more people in the labor force. To produce 40 per cent more goods and services with only 14 per cent more people, either everyone must work harder and longer—which is neither realistic nor a good solution—or industry must be encouraged to invest in more productive machinery and methods. Faster progress in the newer field of automation seems to us to be the only available solution to this problem, particularly in situations where we have exhausted the known economic possibilities in the more familiar field of simple mechanization."

"What does automation mean, applied to the food service industry?' " This question was asked of Colonel Paul Logan, Research Director of the National Restaurant Association, in an interview published in *Food Service* (16).

"To me," he replied "it means an operation in a restaurant which has been so planned that it affords a straight-line production from receiving platform to the dining room for a minimum of cross traffic and the least amount of back haulage. It means the placement of equipment with the greatest of ease and the least amount of traffic. It means the adoption of heat control instruments and timing devices of such accuracy as to eliminate all guess work in the cooking of food.

"For practical purposes, it means mechanization and automatic equipment which will minimize hand handling and particularly, load lifting. It means standardization of dimensions of utensils and containers so that each container becomes a *multipurpose* item, being usable on conveyor belts, refrigerators, in ranges, and on steam tables.

"It means the development and use of dishwashing and pot washing machines and not simply elaborate tools surrounded by manpower."

These are goals all dietitians seek for their departments. Therefore, using Colonel Logan's definition, the subject of automation is well understood by you.

Several subjects outside of the institution that affect the food departments we operate have been reviewed. One other pertinent topic has not been discussed—food prices.

Food Prices

"Since 1952 most reports on price movement of consumer goods have commented on the over-all stability of the price picture. However, when the picture is inspected more closely, this stability is found to be only a superficial characteristic. The true picture is one of counterbalancing price trends of the various parts making the total" (17). The five major components comprising the National Industrial Conference Board's figures are: housing, apparel, transportation, food, and sundries. Rising prices prevailed through 1955 in four of the groups. These moved up 4.9 per cent. The food component, however, went the other direction. The Board states that the consumer was given a break in food prices with a 5.2 per cent increase in what he obtained for his food dollar (17).

Over-all food prices during the first part of 1955 were rather stable, this was due to counterbalancing movements among the components of the food index. For example, coffee prices went down from 1954 highs, but those for fruits and vegetables, especially potatoes, rose to new levels (18).

The food price index for 1953, which is the base year used by the National Industrial Conference Board when the all-food price index is 100, shows by comparison that in 1955 the all-food price index was 98.3. In 1956, the food price index ranged from a low of 97.0 in March and April to a high of 100.1 in July.

Further examination of the food price picture is found in reviewing reports of the Bureau of Labor Statistics. The Bureau uses the period of 1947–1949 as the 100-point index figure. In the figures published for July 1956, the all-commodity wholesale price index stood at 114.0.

When the figures were examined for farm products and processed foods, two of the components making up the "all-commodity" figure, we find the farm products figure is 90.1 of the 1947–49 level and processed foods, 102.2. For all other commodities, the figure was 121.3 of the 1947–49 level (19).

Food prices have not advanced in price as much as prices of other consumer commodities. With the abundant food supplies of the nation, future prices of foods are linked most importantly with the factors of labor, processing, and transportation costs. Freight rate hikes, such as the 6 per cent rise granted last March which yielded $400 million to the railroads' revenues, and the present petition of the nation's eastern and western roads for a hike of 15 per cent, if granted, will cost shippers up to $1 billion annually. These costs can be expected to be reflected in food prices to consumers (20).

Effects of These Factors on Food Management

What do all these facts about our American economy which have been presented mean to dietitians and managers of food departments and institutions, now, in the near future, and over the long-range period?

(a) Prosperity continues to pervade the business economy. It is reflected in higher personal income, in continuing upward swing of wages in industry, in the high employment and low unemployment figures for the work force. These facts for the dietitian indicate no lowering in costs of goods and services she buys for the institution.

(b) For the institution which has a building program under consideration and expects to borrow money to achieve plans, it appears at present that borrowed money will cost more than in the recent past years.

(c) Continuation of the cost-of-living well above the index of 100 for 1947–1949 has meant increases in wages of workers in some industries. The wages of food service workers must keep pace with the cost-of-living and therefore the dietitian can expect to pay higher wages if living costs advance.

(d) The tight labor market, it appears, will continue, both from the short-term and long-range views. The dietitian will not find her problem of obtaining workers easier unless she is able to attract to the food service organization a significant number of older women who are returning to work outside of the home as their families are grown. But, even with this increased source of workers in the labor force, the picture means increasing production with a smaller number of workers if the statement is accepted that by 1970, 55 per cent the population will be under twenty or over sixty-five years old.

(e) As the work week in industry is shortened to 35 hr. or even to 30 hr., the food service institution will also have to shorten its work week in order to remain in a competitive position for its share of available workers.

(f) Prospects are that the prices for the nation's abundant food supply could continue at much the same level as at present, were it not for the fact that labor costs from producer to wholesaler, processing costs, and transportation costs may increase to such a degree that they will affect significantly the price of food to the consumer.

The Answers to These Problems

(a) Automation in terms of mechanization becomes of ever increasing importance.

(b) It will be *not* some *one* to do a job in the food service department but some *thing*—equipment, or perhaps it will be a new food product that has already been completely prepared and processed requiring only minutes or seconds of labor in the kitchen before serving to the guest.

(c) It requires continuous aggressive application of maximum efficiency in management of the entire department and specifically in the use of labor.

(d) Use of all research findings from colleges, universities, experiment stations, government agencies, and industries that will improve the quality of food served and keep the cost percentage within the desired figure.

(e) Finally, are we coming to the day when the largest hospitals and other food service organizations, at least, will consider a research and development department to be as important to them as do large industries? One is impressed that continuously the chairman of a board of directors or a president of a large corporation states that the research and development department in his company is one of the most important departments in his organization.

Is the day coming when we will have a *management research* dietitian on the staff of the hospital, just as we have the administrative, the clinic, and therapeutic dietitian today?

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Perhaps being "retired" will turn out to be only "re-treaded." *Helen T. Parson, Professor Emeritus, University of Wisconsin, Madison*

Better Management by Control of Direct Expenses[1]

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IN THE FOOD service industry, many attempts have been made to control labor costs in all phases of operation. With increasing labor costs and decreasing availability of qualified, effective employees, managers have had to be concerned with the need to decrease production costs to balance the budget.

During the remodeling or establishing of food service units, various methods have been used to estimate the number of workers required, the types of equipment to be installed, and the optimal floor space needed for all food production activities. Yet little information and data are available to justify these estimates. There is a definite trend in the food service industry to use ready-to-cook food items in an attempt to reduce the requirements for labor, expensive equipment and floor space. However, there is little evidence in the literature to provide guides for such actions in terms of cost to the customer or effects on the food and labor budgets. Few studies of labor time in hospitals have been reported (1, 2).

In hospital dietary departments, there is a definite need to identify and analyze direct labor costs for all types of food produced and served in order to control costs more effectively. Much has been written regarding the development and use of standardized recipes and the calculation of raw food costs for each recipe. Since labor costs are almost equal to raw food costs, it is becoming increasingly important to standardize and identify direct labor costs with the calculated food costs. If it is important for the food service manager to measure raw ingredients and yields to insure a satisfactory product, then it is equally as necessary to measure the units of labor.

Perhaps there has not been enough consideration of the possibilities of adapting to the food service industry the time-study techniques and cost control methods of industry.

Woodbridge (3) developed a course of study for students of industrial management emphasizing industrial accounting and cost procedures adapted to both the accounting and the analysis functions of management. For most industries cost accounting has greatest value as a control tool. The cost of a product cannot be controlled after completion; therefore, control should be exercised during the planning and production. A standard is a dependable basis from which to measure variations. Standard costs reveal the established criteria and list the variations from these standards, so that managers become aware of problems requiring immediate attention. To exercise control effectively, management should have current information regarding variations from established standards. When standard cost figures, which keep management informed are not available, the results at the end of the accounting period can be disastrous.

The purpose of this study was to investigate the feasibility of adapting to hospital food service some of the time-study techniques and cost control methods used in industry as a means of controlling the direct expense of food production.

Method of Procedure

Using industrial time-study techniques and cost control methods, the data were collected during production of seventeen different menu items in the dietary departments of two hospitals. The hospitals were selected for the similarity in size of food preparation facilities, modern labor-saving equipment, progressive dietary policies and programs, and for availability for frequent studies made by the investigator through direct observation. The data were collected between December 1955 and May 1956.

[1] Published with the approval of the Director, Wisconsin Agricultural Experiment Station, Data are taken from a thesis submitted by Grace L. Stumpf in partial fulfillment of the requirements for the degree of Master of Science. Presented at the 39th Annual Meeting of The American Dietetic Association in Milwaukee on October 12, 1956.

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TABLE 1 Per-portion costs, labor time, and distance traveled during production of 17 menu items

HOSPITAL AND MENU ITEM	NUMBER OF STUDIES	PORTION COST		TIME PER PORTION	TRAVEL PER PORTION
		Raw food	Direct labor		
Entrées					
				min.	*ft.*
Hospital A					
Swedish meat balls	3	\$0.0062–0.0704	\$0.0099–0.0115	0.34–0.41	3.3–5.6
Escalloped ham and potatoes	3	0.0760–0.0874	0.0097–0.0164	0.39–0.62	5.1–5.4
Hospital B					
Beef à la mode	3	0.1551–0.1672	0.0085–0.0150	0.36–0.55	4.5–6.5
Grilled salmon patties	1	0.1436	0.0253	0.86	10.5
Baked meat loaf	3	0.0950–0.1004	0.0091–0.0177	0.34–0.72	4.8–10.8
French fried shrimp	1	0.2251	0.0205	0.74	3.7
French fried fish sticks	2	0.0850–0.0873	0.0261–0.0331	0.99–1.20	11.3–16.1
Swedish meat balls	3	0.0688–0.0757	0.0200–0.0296	0.73–1.07	5.9–17.2
Vegetables					
Hospital A					
Mashed squash	1	\$0.0132	\$0.0093	0.36	3.1
Cooked carrots	3	0.0087–0.0151	0.0063–0.0076	0.27–0.32	0.9–2.9
Hospital B					
Potatoes, peeled, raw	3	0.0114–0.0148	0.0066–0.0109	0.36–0.57	1.5–1.8
Potatoes, mashed	3	0.0169–0.0237	0.0093–0.0126	0.44–0.55	2.2–4.1
Potatoes, escalloped	3	0.0110–0.0144	0.0097–0.0130	0.45–0.60	2.5–6.8
Salads					
Hospital A					
Carrot-raisin	3	\$0.0141–0.0189	\$0.0079–0.0102	0.32–0.40	3.9–5.5
Waldorf	3	0.0345–0.0571	0.0142–0.0329	0.52–1.21	1.2–6.6
Cabbage	3	0.0061–0.0090	0.0043–0.0067	0.17–0.27	3.5–3.7
Hospital B					
Tossed vegetable	3	0.0103–0.0134	0.0033–0.0101	0.18–0.44	3.7–7.0
Sliced orange	3	0.0220–0.0256	0.0141–0.0176	0.55–0.75	1.8–2.5
Cabbage	3	0.0049–0.0134	0.0027–0.0083	0.12–0.35	2.9–3.2

The menu items studied were classified as entrées, vegetables, and salads. The original selection of the three categories was made after careful study of menus. The menu items selected were typical for hospitals and were some that require much labor time for production. The largest number of studies was made in the entrée category because the raw ingredients used in production represented a large portion of the raw food budget. In general, all studies were repeated three times, making a total of fifty individual studies.

The direct labor time involved and the distance traveled during the production of each menu item were recorded on a "process chart" from the point of original storage in the dietary department to the distribution of the finished product, either to the cafeteria or the bulk food conveyors. This process chart was a graphic means of showing the separable steps of the procedure involved in performing the work required to modify a product from one stage of completion to another. The continuous timing technique was used for recording data on the process chart, and all changes from one task to another were recorded with accuracy to ½ min. (4). In addition to recording the time required for each task, the investigator estimated the distance traveled by the worker. The raw food cost and direct labor cost were calculated from records available in the dietary departments.

Findings and Discussion

For each menu item studied, the direct labor time, the distance traveled, and the direct expenses per portion were calculated.

In most cases, different workers were used to produce the menu items when the items were studied a second and third time. When the data were summarized, however, there seemed to be some similarity among items of the same category in the portion costs for food and direct labor and for direct labor time per portion. There was less similarity among menu items in distance traveled per portion produced. These ranges are shown in Table 1.

The entrées selected for this study required approximately one-third more production time per portion than the vegetables and salads (*Fig.* 1), because more ingredients were used. For each menu item studied, the labor time and distance traveled

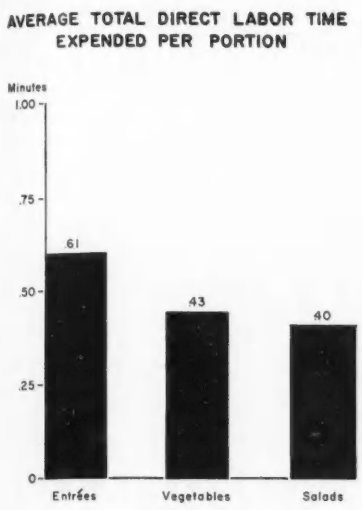

Figure 1

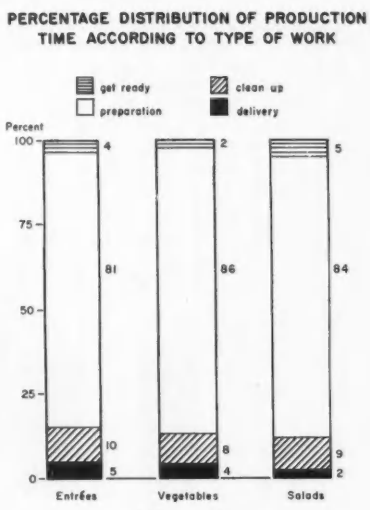

Figure 2

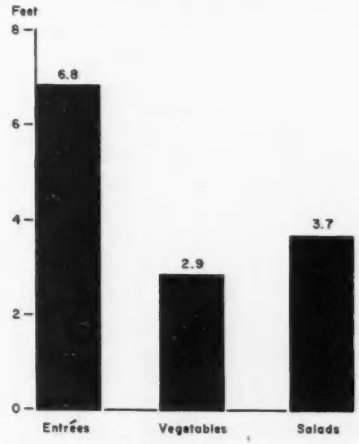

Figure 3

were divided into the following types of work: get ready, preparation, clean-up, and delivery. In general, a similarity of percentage distribution of production time by type of work in the three classifications of menu items was noted (*Fig.* 2). Slightly more than four-fifths of the production time was required for preparation of the menu item, with the remainder of the time divided between get ready, clean up, and delivery. Deviations in production time required were due to the stage of preparation of the as-purchased ingredients used, variations in recipe content and yield, and the relative efficiency of workers.

The total distance traveled per portion for entrées was two to two and one-half times that required for vegetables and salads (*Fig.* 3). Deviations were due to the variation in number of ingredients used, the arrangement of equipment, basic floor plans, and workers' efficiency. Except for the get-ready period for salads, which was approximately two times that required for entrées and vegetables, the percentage distribution of distance traveled for each type of work in the three classifications of menu items was similar (*Fig.* 4). Review of the process charts revealed that the personnel assigned to salad production usually assembled all of the raw ingredients before beginning preparation. Each ingredient was removed from the refrigerator individually, requiring several trips before all the ingredients had been assembled.

"Direct labor cost" for each menu item was the cost of labor expended during production. "Direct expense" was obtained by adding the total raw food cost to the total direct labor cost. The percentage labor cost for vegetables and salads was three times that required for entrées (*Fig.* 5). Because the raw food cost of the ingredients used in the entrées was relatively high compared with that for vegetables and salads, the percentage of direct labor cost for entrées was low.

The direct labor and food expenses per portion for the menu item in each of the fifty studies were compared and are shown in Figures 6, 7, and 8.

Compared with typical extender-type entrées, beef à la mode, salmon patties, and French fried shrimp had a high raw food cost. The direct labor cost of all entrées tended to increase with the amount of portioning or handling associated with the individual menu item.

Direct labor cost was similar for all vegetables studied. This was probably because the labor was expended on one product only and a minimum of effort was required for adding seasonings. A manager may believe that raw vegetables such as cabbage and carrots are inexpensive. However, when using direct expense accounting, the direct labor cost for production of such menu items is almost equal to the raw food cost per portion, and thus the selling price should be increased.

The labor cost for salads varied directly with the amount of individual handling of the specific ingredients. Peeling of the oranges for sliced orange salad and cutting of the apples for Waldorf salad accounted for almost all of the direct labor time.

Indication for Work Simplification, Methods Improvement, and Job Analysis

To control costs more effectively in some industries, each job is studied to determine present methods and time for manufacturing a product. Work simplification techniques are then applied to achieve improvement in the efficiency of the worker, the arrangement of both fixed and movable equipment, and the use of tools available.

One of the process charts recorded for this study

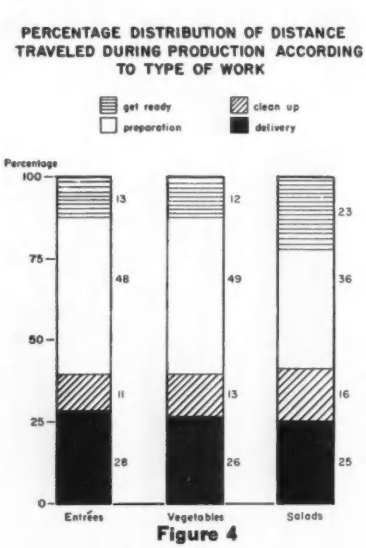

Figure 4

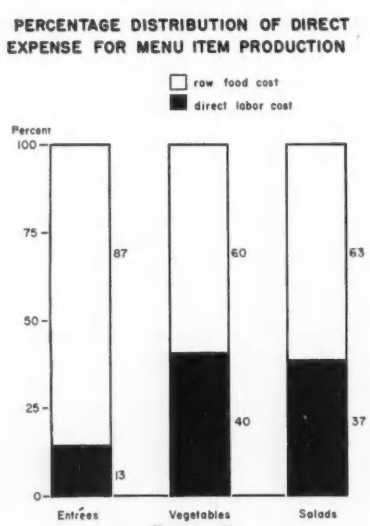

Figure 5

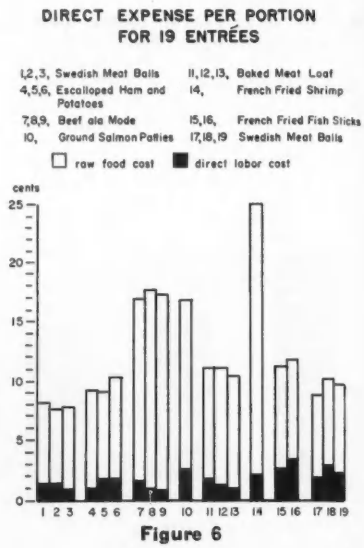

Figure 6

was selected for further investigation. Work simplification techniques were applied to determine how much improvement could be made by the same worker producing the same menu item. The first study was reviewed with the cook, and the simplified plan of production was outlined with his cooperation. Two days later the study was repeated. Production of 300 portions of the menu item by the simplified method resulted in a saving of 16.5 min. of direct labor time, 330 ft. in distance traveled, and 48 cents in direct labor cost.

Job analysis, complemented by job synthesis, shows the manager how to eliminate overlapping duties, reassign duties to the lowest practicable level of management, and develop jobs with closely related duties and responsibilities (5). Industry uses less skilled workers to deliver tools and materials to the skilled personnel, to clean the work areas, and to deliver the finished products to storage areas.

By dividing the tasks in hospital dietary departments into types of work, the investigator found that such tasks could be classified as skilled or unskilled and the personnel assigned accordingly. For example, if the get-ready duties were delegated to a cook's helper and he were also responsible for the clean-up and delivery, the actual direct labor cost for the menu item produced would be reduced by an amount equal to the difference in the hourly wages of the two workers. Improved utilization of personnel could be effected and could result in more effective scheduling of employees and reduction in direct labor costs.

Indication for Procurement of Prefabricated Ingredients and Menu Items

To control production costs more effectively, a manufacturer procures raw materials in various stages of completion and determines which stage will be the most advantageous to purchase (4). The food service industry needs to be equally concerned with determining the amount of prefabrication to buy when purchasing food.

Those concerned with cost control in the food service industry have indicated that the cost of labor purchased in prepared foods generally is less per portion than the cost of the same labor performed in individual kitchens (6). Volume production tends to increase efficiency since each worker performs a limited number of tasks. One way to assure high quality, portion control, and efficiency is through good supervision. With the purchase of prefabricated foods, much of the cost of supervision is paid by the manufacturer.

The original data from this research revealed the cost of the food and the direct labor involved at each step in the production of each menu item. This information could be used by the food service manager to determine whether it would be profitable to purchase a prefabricated ingredient or menu item at a given cost.

After the direct expense had been calculated for potatoes peeled at Hospital B, a comparison was made with the price of commercially prepeeled potatoes. In the three studies, the direct expense for raw peeled potatoes was 10.24, 8.72, and 7.72 cents per pound, respectively. The price quoted by the vendor for prepeeled potatoes was 9 cents per pound. Before determining the economy of purchasing prepeeled potatoes, the manager should consider other related factors in addition to the direct expense involved.

Indication for Establishing Time Standards

For more effective cost control in industrial manufacturing, standards for production are established.

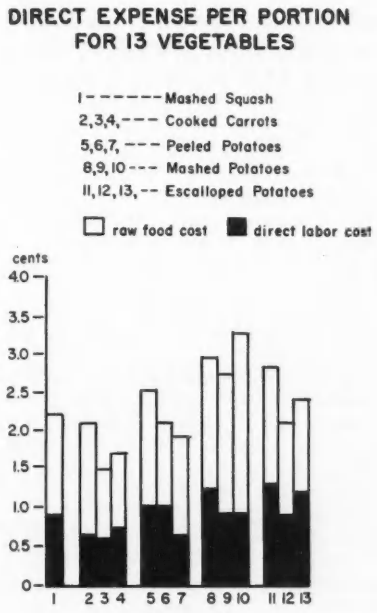

Figure 7

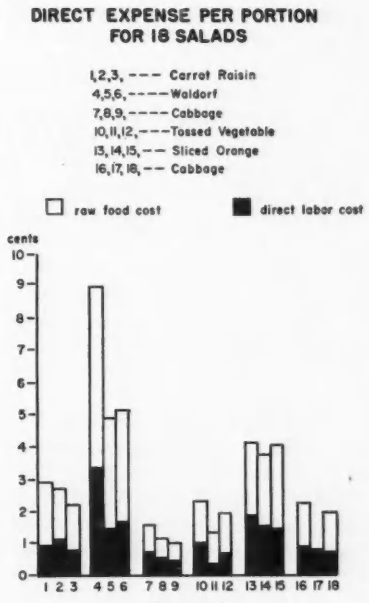

Figure 8

Through the utilization of the data collected in this study, it appears that such standards could be developed for food production just as in industry. When time standards are established, relative efficiency of personnel can be evaluated and employee efficiency can be encouraged.

After careful consideration of the equipment layout, the completion of time studies, and the application of work simplification techniques, a schedule can be prepared that will indicate the standard length of time required for the production of each menu item. The direct labor time per portion multiplied by the number of portions required equals the man-hours of work needed for production of a menu item. When employees complain of too much work, simple calculation of man-hours based on such standards should indicate whether the work was correctly or incorrectly planned.

Morrow (7) suggested that a deviation ratio be calculated when studying time standards. When average direct labor time required by an individual worker is divided by the minimum time found necessary for the job and equals more than 1.40, further study of the time standards is indicated. In industry, the average worker has a deviation ratio of 1.10 to 1.35. It might be possible to adapt this same principle to the evaluation of the time standards in the food service industry.

Summary and Recommendations

The purpose of this study was to investigate the feasibility of adapting to hospital food service some of the time-study techniques and cost control methods used in industry to control the direct expense of food production.

Using industrial time-study techniques and cost control methods, the data were collected during production of seventeen different menu items in the dietary departments of two hospitals. The menu items were classified as entrées, vegetables, and salads. In general, study of each menu item was repeated three times, thus totaling fifty individual studies. The direct labor time involved and the distance traveled during the production of each item were recorded on a process chart using the continuous timing technique. For each menu item, the labor time and distance traveled were divided into the following types of work: get ready, preparation, clean up, and delivery. The raw food cost and direct labor cost were calculated from available records.

After analyzing the data, which were obtained through adapting techniques utilized in industrial manufacturing, the use of such information as a basis for effective cost control in the hospital dietary department was considered. The data were used to demonstrate the need for applying work simplification techniques and methods improvement, decreasing food production costs, and establishing time standards.

Interpretation of these data indicated the feasibility of adapting the time-study techniques and cost control methods of industry to the control of the direct expenses of food production in hospitals.

On the basis of the findings, the following recommendations are made:

(a) For more effective cost control in hospital

dietary departments, extensive time studies should be conducted.

(b) For planning menus, the direct expense of menu items should be calculated and used as a basis for better control of both the food and labor budgets.

(c) The calculation of direct expense for menu items produced centrally and distributed to several serving areas should provide more accurate and less complex allocation of production costs.

(d) To increase efficiency and decrease fatigue of personnel, work simplification techniques should be applied to all areas of food production.

(e) For better control of labor costs, an evaluation of the skills required for all types of work in food production is needed.

(f) Standards for direct labor time involved in production of individual menu items should be established.

(g) For menu planning, time standards should be used to determine the distribution of work by areas and the ability of workers to complete the assigned tasks.

(h) Such standards should be used as one of the objective criteria for evaluating efficiency of personnel.

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Rural Development Program

As part of the U.S. government's Rural Development Program, projects are now planned or under way in fifty-one pilot counties and three trade areas in twenty-four states. The Program, started in 1955 at the recommendation of Secretary of Agriculture Ezra Taft Benson, is designed to serve as a broad-scale attack on the problems of low-income farmers.

In addition to federally-sponsored activities, additional state and county rural development committees have been formed to direct local programs. Several agencies of the Department of Agriculture have allocated funds to the states for supporting technical, educational, and credit services in the pilot counties. The first annual report on the Rural Development Program, released in October, points up the goals of better farming, industrialization, community activity, and improved health and education for our rural communities.

Maryland's pilot county, Garrett, is putting emphasis on better marketing facilities. A new market has been opened under the sponsorship of the rural women's marketing committee. In addition, discussions have been held with dairy industry representatives in Pennsylvania and Maryland to help the dairy marketing committee determine the best area in which to sell Garrett County products. Plans are also being made to find outlets for increased broiler production.

In Tennessee, the state rural development committee has proposed workshops for agency personnel taking part in the program. Two types of workshops are being discussed: one for area supervisors and administrators in each area of the state, and one for pilot county leaders.

A company supplying electric power to Cumberland County, Virginia, is aiding the Rural Development Program leaders in a broad survey of resources and needs. Information obtained will help in making sound plans for a long-range program of economic improvement.

In less than a year since Lewis County, West Virginia entered the Rural Development Program, a whole series of practical projects have been started. The Committee received help from West Virginia University in determining the potential labor supply and present manpower use in the county. A timber resource survey was completed, indicating good opportunities for development of plywood and veneer industries. Poultry production on small farms will expand as a result of a study showing that area demand for poultry is greater than present production. More than one hundred ewes, brought into the county from the West, will be used to demonstrate the value of sheep in increasing small farm income.

All of these activities point up the role of Rural Development, which has been defined as "an integrated undertaking that involves research, education, credit, technical assistance, business, industry, employment services, and vocational training."

Costs and Yield Study in Adjusting Portions for Different Age Groups

School Lunch Portions to Meet Children's Needs[1]

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Department of Institution Management, Iowa State College, Ames

A STUDY OF portions and costs of Type A school lunches was undertaken for the development of eight menus which would meet the needs of boys and girls of various ages in regard to Type A lunch requirements as well as nutritional and cost criteria. Three net yield studies were made on each main protein-rich item which then served as a basis for the school lunch menu. Other factors, such as variety, acceptability, probable equipment, management, and available personnel, were considered. The menus were planned to be acceptable when used individually or as a series. All menus and portion sizes for the ten- to twelve-year-old age group were designed to meet the Type A lunch criteria. In consideration of the differences in the daily dietary allowances of school children, portions specified for six groups of children are on the basis of their nutritional needs. The criterion of an 18-cent raw food cost was based on the average Type A lunch price of 25.2 cents paid by Iowa children in 1954–55 (1). The cost criterion applied only to menus planned for ten- to twelve-year-old children. Costs for the other groups were calculated to show the differences resulting from portion adjustments.

Plan of Procedure

NET YIELD STUDIES

The items chosen as being acceptable for school menus, good sources of protein, and moderately low in cost were: meat loaf, macaroni mousse, eggs à la king potato republic, tuna puffs, hamburger, Spanish rice, and Swedish meat balls.

Collection of data for these studies followed the procedure suggested by the U.S.D.A. Agricultural Research Service; this involved the calculations of loss by difference of raw versus cooked foods.

Results were computed on a per-portion basis in three ways. (a) Recipe size refers to the number of portions stated on the recipe; the total yield was divided by this figure to check the size of portion actually yielded. (b) The total yield was also divided by the portion size stated on the recipe to determine the actual number of portions yielded. (c) The third method affected costs only; the total cost was divided by the actual number of persons served, and the size of portion served was that stated on the recipe. The three net yield studies on each item indicated some variation in total yield, portion yields, and costs

PLANNING TYPE A MENUS

The Type A menu pattern was devised to provide one-third to one-half of the daily dietary allowances recommended by the National Research Council for the ten- to twelve-year-old child (2). Menus in this study were planned to be attractive, varied, pleasing in texture and flavor, and each was to include at least one popular food (3, 4). In the selection of menu items, the nutritional contribution was a primary criterion, with costs secondary. Probable equipment, labor time, and experience and training of school lunch personnel were additional considerations. Values for allowable servings per food unit were obtained from the U.S.D.A. table (5) and adaptations of the table (6). For each menu, an evaluation, according to Type A requirements, was set up in tabular form.

RECOMMENDED DIETARY ALLOWANCES

For this study, the school lunch menus were designed to approximate one-third of the daily dietary allowances (7). Menus were calculated for calories, protein, calcium, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid for six groups:

Group A—10- to 12-year-old boys and girls
Group B—7- to 9-year-old boys and girls
Group C—13- to 15-year old girls
Group D—16- to 20-year old girls
Group E—13- to 15-year-old boys
Group F—16- to 20-year-old boys

[1] Received for publication July 31, 1956. Presented in partial fulfillment of the requirements for the degree of Master of Science by Ann Hunter.

Since it seemed advisable to limit the number of groups to six, allowances for Group A were those for boys, although these are actually higher than for girls by 67 calories, 0.03 mg. thiamine, and 0.3 mg. niacin. If nutrients for one group approximated those of another, changes were not always recommended. For instance, although increases in one-third of the allowances for Group C amount to: 2 gm. protein, 1 mg. iron, 1.67 I.U. vitamin A, 0.1 mg. riboflavin, and 2 mg. ascorbic acid, no adjustments of Group A menus were recommended for Group C. Also, in four menus, no change was suggested for Group D.

COSTS

Costs were figured in two ways. Actual cost included purchased items; estimated cost included in addition, the value of the donated commodities based on current market prices. For each menu item, both costs were figured for the total recipe and reduced to a per-portion cost. Total lunch costs were obtained for each group.

Average cash receipts in Iowa for each Type A lunch were 25 cents plus 4 cents federal reimbursement. Average expenses were: food 18 cents, labor 9 cents, and miscellaneous 2 cents (1). The range of actual costs for the eight menus for Group A was 16.6 to 19.1 cents. Adjustments in portions and, in some instances, the menu itself for the remaining groups caused a corresponding variation in the food costs.

PORTION ADJUSTMENTS

Each Group A menu was checked against the three criteria: Type A requirements, one-third of the Recommended Dietary Allowances for the ten- to twelve-year-old boy, and an 18-cent raw food cost. When the menu met these criteria, adjustments in portion size or menu items were then made for the other groups. These adjusted menus were evaluated solely in terms of nutritional criteria. The lower values recommended for Group B were met by reducing Group A portion sizes, whereas they were generally increased for Group E. Adjustments for Group F involved an addition of nutrients and 200 calories to the Group E menu and were effected by increased portions or extra menu items. These changes were planned to be operationally feasible.

MENUS

The complete procedure is described for Menu 1 only. Information on the other seven menus is limited to nutritional adequacy and costs for Group A, and to recommendations for portion adjustments to meet nutritional needs of the other groups.

TABLE 1 **Nutrients and costs for the six groups for Menu 1**

GROUP	MENU ITEM	PORTION SIZE	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID	COST	
												Actual	Estimated
				gm.	mg.	mg.	I.U.	mg.	mg.	mg.	mg.		
A and C	Meat loaf	3.2 oz.	177	14.3	35	2.1	771	0.14	0.18	3.3	1	$0.06	$0.06
	Parsley	⅓ oz.	2	0.2	9	0.2	374	0	0.01	0.1	9	0	0
	Baked potato	5⅓ oz.	131	24.0	14	0.8	176	0.11	0.05	1.4	17	0.02	0.02
	Butter	1 tsp.											
	Glazed carrots	1 Tbsp.	155	1.2	37	0.8	11,520	0.05	0.05	0.6	6	0.03	0.03
	Half-and-half sandwich	½ slice	47	1.0	10	0.2	78	0.03	0.02	0.3	0	0	0.01
	Butter	½ tsp.											
	Oatmeal cookie	2	163	2.4	22	0.8	37	0.11	0.06	0.4	0	0.01	0.02
	Milk	½ pt.	166	8.5	288	0.2	(390)*	0.09	0.42	0.3	3	0.06	0.06
Total			841	30.0	415	5.1	13,346	0.53	0.79	6.4	36	0.18	0.20
B	Group A minus ½ portion meat loaf, parsley, and cookie		671	21.5	381	3.5	12,814	0.41	0.67	4.4	31	0.14	0.16
D	Group A minus sandwich		794	29.0	405	4.9	13,268	0.50	0.77	6.1	36	0.17	0.19
E	Group A plus ½ tsp. butter, 1 portion carrots, and sandwich		1,060	32.3	464	6.0	25,023	0.62	0.87	7.3	42	0.21	0.24
F	Group E plus 2⅔ oz. potato (total, 8 oz.), and 1 marmalade sandwich		1,256	35.7	494	7.0	25,189	0.73	0.94	8.6	52	0.23	0.27

* Figures in parentheses represent imputed values for which little or no experimental evidence is available (8).

Findings

MENU 1

The original menu and portions planned were maintained in the final menu with the exception of one sandwich and an apple for dessert. Except for calories, 799, the menu was nutritionally adequate. Portion costs were 21 cents actual and 23 estimated (16⅔ per cent above the actual raw food cost criterion).

Portion sizes, nutrients, and costs for Menu 1 as finally worked out for the six groups are shown in Table 1. Alterations from the original plan included: ⅓ oz. parsley added as a garnish for the meat loaf and a change to oatmeal cookies for the dessert, which increased calories and lowered costs. The resulting 55-calorie excess was adjusted by decreasing the sandwich by one-half.

Net Yield Study. Results of the first of three studies on meat loaf yield appear in Table 2. The recipe was adjusted to yield 85 portions, and portions yielded were identical to the recipe size. Portion size (total weight when cooked divided by total portions yielded) was 3.26 oz. Loss was 8 oz., or 2.78 per cent. Portion cost (total recipe costs divided by total portions yielded) was 7.47 cents (7.6 cents average for the three studies). When total cost in the first study was charged to 77 portions served instead of 85 prepared, portion cost increased 0.8 cent. Price variations during the three studies also affected costs.

Type A Requirements. An evaluation of the Group A menu according to the Type A lunch pattern is shown in Table 3. The ¾-cup requirement for fruits and vegetables was met exclusive of the potatoes and was exceeded by 145 per cent when they were included. Throughout this study, one slice of bread and 1 tsp. butter were considered to be one sandwich. Since one-half sandwich was planned, the bread requirement was not met. A pound of enriched flour, however, was used in the oatmeal cookies. The use of butter in the glazed carrot recipe would add more than enough to meet the shortage in the butter requirement.

Recommended Allowances. After the menu approximated the three criteria for Group A, portion adjustments were made to meet the nutritional criteria for the other groups. These are indicated in Table 1. Needs of the Group B children were met by reducing the meat loaf, parsley garnish, and dessert portions by half and otherwise serving the same size portions as for Group A. The menu for Group A was adequate for Group C and also for Group D, after eliminating the sandwich. For Group E, the glazed carrot portion was doubled and one-half sandwich added. Group E portions were used for Group F plus a half portion of potato and a marmalade sandwich. For the most part, the values obtained were more than adequate (Table 1).

Cost. The actual cost of 17.8 cents for Group A met the cost criterion. Group B portions reduced actual cost by 3.6 cents, whereas the Group D reduction amounted to only 0.5 cent. Increases for Groups E and F in actual costs were 3.0 and 5.6 cents, respectively.

Summary. Caloric values for Groups A and C exceeded the recommendations by 8, but for Groups D, E, and F were 6, 7, and 12 calories below, respectively. One-third of the remaining allowances were met by this menu for each of the six groups. Portion changes were limited, and the nutritional criteria could be met in ways easy and simple to administer during service. Sandwiches would be cut and served in quarters for all groups. The marmalade, added for extra calories to the Group F menu, could be served in paper cups or spread in the second sandwich; the latter procedure has the advantage of being less easily recognized as an extra item. The adjustments in portion size (decreases and increases) were considered feasible from both management and operational standpoints.

OTHER MENUS

Nutrients and costs for Group A for Menus 2 through 8 are shown in Table 4.

Menu 2. All nutrients, with the exception of niacin were met or exceeded in Menu 2. If not a meatless day, substituting a meat filling in the sandwich for the egg is suggested. Adjustments of Group A

TABLE 2 Data on net yield from meat loaf*

INGREDIENT	AMOUNT	COST
Veal, ground	2 lb. 8 oz.	$1.15
Pork, ground	2 lb. 8 oz.	1.57
Beef, ground	7 lb. 4 oz.	2.70
Onions		
AP	2 lb.	0.19
EP	1 lb. 12 oz.	0.19
Carrots		
AP	1 lb. 8 oz.	0.12
EP	1 lb. 5 oz.	
Salt	5¼ Tbsp.	—
Pepper	1¾ tsp.	0.01
Worcestershire sauce	5¼ tsp.	0.02
Tabasco sauce	few drops	—
Eggs	14½ oz.	0.29
Bread crumbs	1 lb. 5 oz.	0.11
Milk	2 lb. 4 oz.	0.19
Total uncooked weight and cost	19 lb.	$6.35
Total cooked weight	18 lb. 8 oz.	
Drippings	1 lb. 3 oz.	
Loss, excluding drippings	8 oz.	
Per cent loss	2.78	
Recipe size	85 portions	
Recipe yield	85 portions	
Portion size	3.26 oz.	0.0747
Persons served	77	
Portion served	3.26 oz.	0.824

* Figures from study made on September 29. Prices on January 12 and February 16, at time of other two yield studies, varied slightly.

TABLE 3 Evaluation of Menu 1 for Type A lunch for ten-to-twelve year children (Group A) for fifty servings

KIND OF FOOD	UNIT	ALLOWABLE SERVINGS PER UNIT	ACTUAL QUANTITY USED TO SERVE 50 CHILDREN	TOTAL AVAILABLE SERVINGS	SERVINGS COMPARED WITH TYPE A UNIT REQUIREMENTS
Milk					
Whole milk as beverage	½ pt.	1	50 half pts.	50	same
Protein—Rich Foods					
Veal, ground*	1 lb.	5	1½ lb.	7½	
Pork, ground*	1 lb.	4–4½	1½ lb.	6½	
Beef, ground (top round)*	1 lb.	8	4 lb.	32	
Eggs*	1 egg	1	8 eggs	8	
Milk, nonfat dry*	1 oz.	—	2½ oz.	—	4
Total				54	+4
Fruits and Vegetables					
Onions*	1 lb.	4	1 lb.	4	
Carrots†	1 lb.	4	12 lb.	48	
Potatoes	1 lb.	4	17 lb.	68	
Raisins	1 lb.	5	½ lb.	2½	
Total				122½	+72½
Bread					
Bread crumbs*	1 lb.	18	¾ lb.	13½	
Enriched white bread	1 slice	1	12½ slices	12½	
Whole wheat bread	1 slice	1	12½ slices	12½	
Total				38½	−11½
Fats					
Butter or fortified margarine	1 lb.	48	12½ oz.	37½	−12½

* Incorporated in meat loaf.

† Part were incorporated in meat loaf; remainder served as glazed carrots.

portions for Menu 2 for other groups are shown in Table 5. Similar tables for the other menus were worked out to serve as the basis for serving instructions for personnel and for ordering proper sizes of serving equipment.

The hard cooked egg could be used as garnish for the broccoli or served as such. The latter suggestion would reduce plate waste on this item if the children did not eat all of the broccoli which might be an unfamiliar food. The one-third portion of potato republic added for Group F could be cut previously and served with a regular portion. The celery-and-nut sandwich for the two groups of older boys is an easy way to increase nutrients and calories. These adjustments would not create management problems.

Menu 3. Menu and portion sizes for Menu 3 provided values which met or exceeded the allowances for Groups A, C, and D in all nutrients except niacin (0.6 mg. low). Menus for Groups B, E, and F met or exceeded the allowances for all nutrients; calories, however, were 12 below for Group E and 9 below for Group F.

This menu was easily adjusted and served. Changes for Group B were: three-fourths portion of macaroni mousse (No. 16 scoop), a half portion of beans (¼-cup), and three-fourths portion of fruit cup (⅓ cup). For group E, one-sixth portion of mousse (No. 10 scoop) and a muffin with butter were added. The Group F menu was comprised of the Group E menu plus another portion of salad, muffin, and butter. When the younger children go through the line first, the mousse can be portioned to their size serving; otherwise the previously specified scoops should be at the counter. Similarly, the ⅓-cup measure should be available for serving the fruit cup to Group B, if not served in advance.

Actual costs of Menu 3 for all except Group F were within the 18-cent criterion. U.S.D.A.-donated commodity values for Groups E and F were 8.5 and 10.2 cents per lunch.

Menu 4. The menu and portion sizes for Group A were adequate for Groups A, C, and D, except for thiamine which was 0.07 mg. low. The average thiamine values for Menus 1, 2, and 3 for Groups A, C, D, E, and F were 0.47, 0.47, 0.46, 0.55, and 0.65, respectively. Since these values were above the allowances and thiamine can be stored by the body, this menu was not changed. The protein value was high for each group.

Three-fourths portion of hamburger, bun, butter, and pickle relish was indicated for Group B, and one and one-half portion for Groups E and F. For the

TABLE 4 **Nutrients and costs for Group A for Menus 2 through 8**

MENU ITEM	PORTION SIZE	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID	COST	
											Actual	Estimated
Menu 2												
			gm.	mg.	mg.	I.U.	mg.	mg.	mg.	mg.	cents	cents
Potato republic	3 oz.	168	7.8	172	1.0	550	0.09	0.21	0.7	13	2.3	4.5
Egg	½ egg	38	3.0	13	0.6	275	0.02	0.06	tr	—	1.5	1.5
Brocoli with Butter	¼ cup; ½ tsp.	31	1.5	61	0.6	1489	0.04	0.07	0.6	45	4.5	4.7
Celery	2 sticks	2	0.1	6	0.1	—	0.01	tr	tr	1	0.7	0.7
Sandwich: Enriched white bread; Butter	1 slice; 1 tsp.	98	2.0	19	0.4	156	0.06	0.04	0.5	—	0.9	1.6
Cranberry crunch	2¼ x 2⅓	343	2.8	26	1.4	163	0.12	0.04	0.5	1	2.3	3.2
Milk	½ pt.	166	8.5	288	0.2	(390)*	0.09	0.42	0.3	3	6.0	6.0
Total		846	25.7	585	4.3	3023	0.43	0.84	2.6	63	18.2	22.2
Menu 3												
Macaroni mousse	No. 12 scoop	185	6.2	78	0.8	662	0.04	0.12	0.4	4	2.3	3.8
Buttered dry Lima beans	½ cup	169	8.5	29	3.1	150	0.20	0.07	0.1	1	—	2.5
Lettuce salad with French dressing	1 oz.	22	0.3	4	0.1	107	0.01	0.02	—	2	2.3	2.3
Peanut butter muffin; Butter	No. 30 scoop; 1 tsp.	184	5.0	31	0.7	190	0.08	0.09	2.2	—	0.5	2.2
Fruit cup	½ cup	107	0.9	31	0.7	299	0.12	0.04	0.4	23	5.5	6.4
Milk	½ pt.	166	8.5	288	0.2	(390)	0.09	0.42	0.3	3	6.0	6.0
Total		833	29.4	461	5.6	1798	0.54	0.76	3.4	33	16.6	23.2
Menu 4												
Hamburger	3 oz.	304	14.8	14	2.2	53	0.06	0.14	3.5	tr	7.1	7.1
Bun; Butter	1 oz.; 2 tsp.	154	2.6	17	0.5	313	0.07	0.04	0.6	—	2.0	3.4
Pickle relish	2 tsp.	9	0.1	1	0.1	10	—	tr	—	1	0.4	0.4
Onion	1 slice	4	0.1	3	tr	4	tr	tr	tr	1	0.2	0.2
Stewed tomatoes	½ cup	49	1.3	14	0.8	1395	0.07	0.04	0.9	21	—	3.9
Apple brown Betty with milk	3 oz.; 1 Tbsp.	145	1.4	45	0.2	213	0.04	0.06	0.2	3	2.7	3.1
Milk	½ pt.	166	8.5	288	0.2	(390)	0.09	0.42	0.3	3	6.0	6.0
Total		831	28.8	382	4.0	2378	0.33	0.70	5.5	29	18.4	24.1
Menu 5												
Eggs à la king	½ cup	236	9.9	152	1.7	732	0.09	0.32	0.3	7	5.2	6.4
Rice	⅓ cup	66	1.4	4	0.1	—	0.04	0.01	0.7	—	—	0.4
Carrot and raisin salad	No. 12 scoop	157	1.4	36	0.9	7385	0.06	0.07	0.4	6	3.8	3.8
Whole wheat sandwich; Butter; Peanut butter	1 slice; 1 tsp.; 1 tsp.	124	3.2	22	0.5	156	0.07	0.05	1.2	—	0.9	2.0
Cherry gelatin with grapefruit sections	5 oz.	93	1.6	7	0.2	5	0.02	0.01	0.1	17	1.1	2.8
Milk	½ pt.	166	8.5	288	0.2	(390)	0.09	0.42	0.3	3	6.0	6.0
Total		842	26.0	509	3.6	8668	0.37	0.88	3.0	33	17.0	21.4

* Figures in parentheses represent imputed values for which little or no experimental evidence is available (8).

TABLE 4—Concluded

MENU ITEM	PORTION SIZE	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID	COST	
											Actual	Estimated
Menu 6												
			gm.	*mg.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*	*cents*	*cents*
Tuna puff	2¼ x 2⅓	190	14.5	128	1.6	298	0.12	0.28	3.6	tr	5.0	5.4
Tomato sauce	2 Tbsp.	23	0.3	2	0.1	183	0.01	0.01	0.2	2	0.2	0.6
Buttered green beans	⅓ cup	49	0.9	23	1.1	493	0.04	0.03	0.2	4	4.1	4.8
Butter	1 tsp.											
Baking powder biscuits	2 small	173	3.2	48	0.5	158	0.09	0.12	0.1	tr	0.4	1.5
Butter	1 tsp.											
Apricot Graham cracker pudding	2¼ x 2⅓	264	5.6	99	2.3	3087	0.05	0.19	1.4	5	2.0	7.2
Milk	½ pt.	166	8.5	288	0.2	(390)	0.09	0.42	0.3	3	6.0	6.0
Total		865	33.0	588	5.8	4609	0.40	1.05	5.8	14	17.7	25.5
Menu 7												
Spanish rice	¾ cup	288	9.8	35	2.0	1354	0.10	0.16	3.0	20	7.6	8.1
Frozen peas	¼ cup	62	3.5	11	0.9	484	0.20	0.07	1.2	11	4.2	4.6
Butter	½ tsp.											
Corn bread	2½ x 3⅗	157	3.3	66	0.4	66	0.11	0.12	0.8	tr	0.7	1.1
Butter	1 tsp.	34	tr	1	—	156	tr	tr	tr	tr	—	0.7
Peach half with Sirup	1 medium 1 Tbsp.	40	0.2	3	0.3	265	tr	0.01	0.4	2	—	1.1
Dropped molasses cookie	1 cookie	91	1.0	27	0.8	22	0.01	0.01	0.1	—	0.6	0.7
Milk	½ pt.	166	8.5	288	0.2	(390)	0.09	0.42	0.3	3	6.0	6.0
Total		838	26.3	431	4.6	2737	0.51	0.79	5.8	36	19.1	22.3
Menu 8												
Swedish meat balls	2, 1½-oz. balls	234	16.9	32	2.4	398	0.22	0.21	3.8	tr	6.3	6.4
Gravy	1¾ Tbsp.	48	1.4	45	0.1	137	0.02	0.07	0.1	tr	—	0.5
Mashed potatoes	½ cup.	150	4.1	80	0.8	173	0.14	0.15	1.4	20	1.4	2.4
Cabbage salad	1½ oz.	40	1.8	42	0.3	380	0.04	0.08	0.2	17	1.1	1.2
Whole wheat sandwich	1 slice	87	2.1	23	0.5	156	0.07	0.03	0.7	—	0.9	1.6
Butter	1 tsp.											
Brownie	1½ x 2½	111	1.9	29	0.5	35	0.04	0.06	0.2	tr	1.1	1.3
Milk	½ pt.	166	8.5	288	0.2	(390)	0.09	0.42	0.3	3	6.0	6.0
Total		836	36.7	539	4.8	1669	0.62	1.02	6.7	40	16.8	19.4

younger children, the hamburger, served with the bun and relish, would be cut into fourths to make it easier to eat and feasible to serve three-fourths of a portion. Scoop sizes for the dessert would be: No. 12 for Groups A, C, D, and E; No. 16 for Group B (2-oz. portion); and No. 10 for Group F (4-oz. portion). A pint of milk is served to Group F.

Although the actual cost for Group A of 18.4 cents closely approximated the criterion, the 15.2 cents for Group B was comparatively high, and costs for Groups E and F followed this trend.

Menu 5. Niacin was the only nutrient the recommendation for which was not met in Menu 5; it was 0.5 mg. below the allowance for Group A and 1.0 mg. below for the other groups. Menu 5 contains no outstandingly good sources of niacin; in fact, the sandwich makes the greatest contribution. Having a second menu fail to meet the niacin allowances was undesirable; however, the average value for niacin in the previous menus was above the allowance for the ten- to twelve-year-old boy. The high vitamin A and ascorbic acid values indicate that allowances for these nutrients can be met at a comparatively low food cost by careful planning and the use of donated commodities.

The Group A menu was used for Groups C and D. No reduction in sandwich size was made for Group D since maintaining the minimal level of iron and niacin was considered more important than slightly exceeding the caloric allowance. Portion adjustments are somewhat involved and might delay service.

It is recommended that the dessert be portioned and that the various size serving utensils be available as each group comes through the line. For example, a ⅓-cup measure for eggs à la king and a ¼-cup measure for rice for Group B, and a ½-cup measure for eggs and ⅓-cup measure for rice for Groups A, C, D, and E. The Group F menu would require a ¾-cup measure for eggs and ½-cup measure for rice. The Group E menu has 1½ sandwiches and Group F, 2; both groups received 1 pt. milk.

Cost for Group A was within the criterion. Increases in actual costs for Groups E and F were 6.5 and 9.6 cents, respectively; the extra ½-pt. milk for these groups added 6 cents per lunch.

Menu 6. Ascorbic acid allowances were not met for any group with Menu 6, but all others were met or exceeded, except for thiamine for Groups E and F.

Buttered corn was added to the Group F menu as it was considered to be more acceptable than further portion increases. Since tuna puffs might be unfamiliar, the standard size portion was recommended for everyone with an extra tablespoon of tomato sauce for Group F. Groups E and F were given double portions ofe bans. The greatest variation suggested was in the serving of small biscuits: Groups B and D were served one and Groups E and F, 3; Group D had ½-portion butter, E had 1½, and F, 2½. Dessert was reduced by half for Group B and increased by half for Groups E and F.

Half teaspoons of butter for biscuits should be ready in advance. The tuna puff portions were cut to speed service and reduce dishwashing. The tomato sauce could be served over or beside the puff.

This is a good example of the use of U.S.D.A.-donated commodities to lower costs. Actual cost for Group A was 17.7 cents, and costs for the other groups were typical.

Menu 7. Although the Type A requirements were not met for protein-rich foods and for butter or margarine, one-third of the recommended allowances were met for all nutrients in each group. Use of a vegetable high in protein accounted for this. Several menus have met the Type A requirements but were below the allowances for one or more nutrients. This indicates the need for careful planning with respect to both criteria.

Portion adjustments for each age group were easy to manage. Serving a half-portion to Group B represents the only time the reduction in calories and nutrients was made by a single adjustment. Group A portions were used for Groups C and D. The corn bread and butter portions were increased by one-half and the dessert doubled for Groups E and F, with a peach and ½ pt. of milk added for Group F.

This menu represents the highest actual cost for Group A in this study. Actual costs for the remaining groups were also slightly higher than the average.

TABLE 5 Menu 2—adjustments in portions to meet allowances for different groups

MENU ITEM	NUMBER OF PORTIONS				
	Groups A and C	Group B	Group D	Group E	Group F
Potato republic	1	¾	1	1	1⅓
Broccoli	1	1	1	1	1
Celery sticks	1	1	1	1	1
Egg	1	1	1	2	2
Enriched white bread	1	½	½	2	2
Butter	1	½	½	1	1
Celery-and-nut filling	—	—	—	1	1
Cranberry crunch	1	¾	1	1	1½
Milk	1	1	1	1	1

Menu 8. In Menu 8, all nutrient allowances for Group A were exceeded. The protein value was 13 gm. high, which did not indicate a need for further protein-rich foods. The high protein allowance existed throughout the six groups. Calories were slightly low for Groups B, E, and F, but the remaining nutrients exceeded the allowances.

The Group A portions were satisfactory for Groups C and D. For Group B, portions were reduced to one meat ball, 1 tbsp. gravy, and ⅓ cup potatoes. Portions for Groups E and F were increased to 2½ Tbsp. gravy, ⅔ cup potatoes, 3 oz. salad, and 2 brownies. An additional sandwich was added for Group F.

The use of a No. 30 scoop for portioning the salad and pre-cutting the brownies would facilitate service.

The actual cost for Group A was 16.8 cents which was 1.2 cents below the raw food cost criterion. Actual costs for the remaining groups were also low.

Recapitulation

Evaluations of the Type A lunch pattern have indicated that the needs of children other than ten- to twelve-year-old boys are often inadequately met. The purposes of the present study were to indicate the differences in nutritional needs of boys and girls of varying ages and to develop menus and make adjustments in portion sizes which would meet these needs and be feasible from an operational and management standpoint.

Although several nutrients were low in individual menus, the average caloric and nutrient values for the eight menus for each group exceeded one-third of the Recommended Dietary Allowances as shown in Table 6. Adequacy of portions served was evaluated with the assumption that all of the food would be consumed. This would be a challenge to management for careful preparation and service.

Driesbach and Handy (9) indicated that the protein-rich food requirements were occasionally not met when a combination food was used or the source was not a single meat item. For this reason, four menus (Table 4) were developed around main menu

TABLE 6 **Average nutritive values of eight menus, according to the six groups**

GROUP	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMINE	RIBOFLAVIN	NIACIN	ASCORBIC ACID	COST	
										Actual	Estimated
		gm.	*mg.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*		
A	842	29.5	489	4.7	4778	0.47	0.85	4.9	36	$0.177	$0.222
B	669	23.6	442	3.5	3808	0.37	0.74	3.8	30	0.148	0.182
C	842	29.5	489	4.7	4778	0.47	0.85	4.9	36	0.177	0.222
D	819	29.0	483	4.6	4749	0.45	0.84	4.8	36	0.176	0.219
E	1062	35.4	577	6.0	6712	0.56	1.02	6.2	40	0.212	0.270
F	1269	41.1	691	6.9	7085	0.66	1.33	7.3	46	0.249	0.318
Total.....	—	—	—	—	—	—	—	—	—	$1.139	
Average...										0.190	

TABLE 7 **Cost of 100 school lunches based on percentage distribution of groups for average actual cost of eight menus**

GROUP	NUMBER OF CHILDREN*	COST
A	28	$4.956
B	32	4.723
C	10	1.770
D	8	1.406
E	15	3.198
F	7	1.742
Total.....	100	$17.785
Average cost per lunch.....		0.178

* Based on Laughlin's percentages (4).

items consisting of a combination of protein-rich foods other than meat. Eggs provided adequate protein for 48 servings in eggs à la king; for 40 servings in Menu 2 (15 in potato republic and 25 as hard cooked); and for 38 servings in tuna puffs. The remaining protein-rich foods for these menus were cheese, peanut butter, and other foods.

The adjustments in portion sizes were kept as simple as possible. Portions of selected items in the Group B menu were generally one-half or one-third of those for Group A. The Group A menu was considered adequate for Group C, but it seemed desirable to decrease calories for Group D. Group E adjustments involved increases to Group A portions and/or additions to the menu. Group F adjustments were based on the Group E menu. When new items were added, they were those which could be prepared and served with a minimum of additional labor and service time. Portion adjustments permitted service to continue without interruption even when the various age groups of children did not come through the line at the same time. Attention was given to choosing a serving procedure which would avoid delays and the need for additional equipment.

This plan requires that the school lunch personnel have a knowledge of the serving equipment necessary to yield the desired portion sizes. Purchasing procedures would have to be developed in each situation on the basis of the number of children in each group participating in the school lunch program. It is conceivable that the proportion of younger to older children would be such that the amounts of food purchased for the Type A lunch pattern would be approximately adequate.

Except for Menu 7, actual costs for Group A were within the raw food cost criterion of 18 cents. The adjustments recommended for Group F increased the average cost 7 cents. Laughlin (4) found in a study of one school with twelve grades that 28 per cent of the children participating in the school lunch program were in Group A; 32 per cent in Group B; 10 per cent in Group C; 8 per cent in Group D; 15 per cent in Group E; and 7 per cent in Group F. If these distribution figures are typical, the average cost per lunch for all menus in this study would be 18 cents (Table 7) in a school having all twelve grades. In elementary schools, where enrollment percentages would be larger for Groups A and B, portions would be adjusted downward in size. There would, of course, be a decrease in average cost per lunch. Conversely, in high schools, with larger enrollments in the older groups requiring increased portions, the average cost per lunch would be higher. A comparison of actual and estimated costs (Table 6) indicated the economic value of the extensive use of U.S.D.A.-donated commodities.

Recommendations

On the basis of the findings in this study, the following recommendations can be made:

(1) Recognition by those concerned with the school lunch program of the nutritional needs of the boys and girls of different ages.

(2) Adoption of a menu plan which meets the Type A lunch requirements for the ten- to twelve-year-old boy; adjustment of this plan to meet the needs of the children of the other groups enrolled in the school.

(3) Serving periods scheduled to handle grade groups which approximate the age groups specified, so that service of adjusted menus is facilitated.

(4) Adjustment in portion sizes by the easiest possible method.

(5) Installation of charts and other teaching aids near the counter to insure the proper use of scoop sizes and other measures.

(6) Education of the counter and other lunch personnel to the importance of careful food preparation and service.

(7) Use of standardized recipes.

(8) Maintenance of records of participation of children in the various age groups to facilitate predictions needed to establish purchasing requirements.

(9) Use of tables comparable to those presented in this study as sources of the contributions of various recipes and foods and as guides for making adjustments for additional menus.

(10) Further study and testing of this plan by actual use in school lunch programs.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

John Woodall—1556 (?)—1643

"The juyce of lemons is a precious medicine and well tried, being sound and good," wrote John Woodall in 1617 in his book, *The Surgion's Mate*. This was a hundred years before the birth of James Lind (1716–1794) and 178 years before Gilbert Blane (1749–1834) succeeded in having a regulation enforced by the Royal Navy making it mandatory to carry a supply of fresh fruits and vegetables on all naval vessels, for the prevention of scurvy. Thus do we see how slow has sometimes been the acceptance of new knowledge in medicine and science.

Woodall's recommendation for the juice of lemons for scurvy was based on practical experience and observation, whereas Lind's use of lemon and lime juice over a century later was based on a carefully controlled experiment. Until the eighteenth century, scurvy was "that plague of the seas and spoyle of the mariners." Woodall thought scurvy was a disease of the spleen, but his description of the symptoms of the disease was fully and accurately given.

John Woodall was born about 1556 and was the son of Richard and Mary Woodall of Warwick, England. There is practically no information about his early education or where he had his training in surgery, but in 1591, he was appointed Military Surgeon to Lord Willoughby's regiment and spent seven or eight years on the Continent, mainly in Germany where he acquired enough of the language to serve as interpreter for Queen Elizabeth's embassy. On his return to England he was admitted to the Barber-Surgeons Company of London (1599) and later became Warden (1627) and Master (1633) of the company.

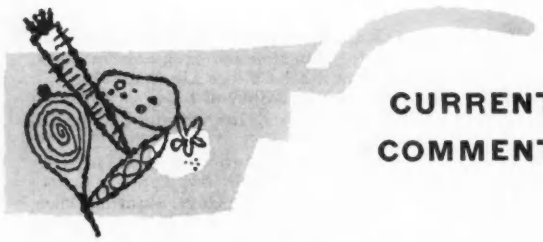
When the East India Company was formed, John Woodall was appointed its first Surgeon-General, a position which he held for thirty years. His duties were to secure fit and able surgeons and surgeon's mates for the company's ships and to plan supplies of medicines and instruments. He drew up regulations on this and in 1617 published *The Surgion's Mate, or a Treatise discovering faithfully the due contents of the Surgion's Chest*, in which he described scurvy and the value of lemon juice. In 1628 he published his most interesting book, *Viaticum, Being the Pathway to the Surgeon's Chest*, and in 1639 he combined the two, along with a treatise on plague and a detailed description of scurvy, calling it *Manual of Military and Domestic Surgery*.

Woodall was also interested in the Virginia Company and actively promoted the export of cattle to Virginia to provide the colonists with milk.

He was appointed Surgeon at St. Bartholomew's Hospital in London (1616) and held this office until his death. Every Monday and Thursday he attended at the hospital. His appointment was made the same year that William Harvey, physician at that hospital, began to lecture on the circulation of the blood, although he did not publish his classic on this subject until 1628.

In *The Surgion's Mate*, an engraving of Woodall shows him as having a pointed chin, long nose, frowning brows, and a beard, and wearing a skull cap and ruff. He was married to Sara Henchpole and had a family of three sons and a daughter. He died in 1643.

REFERENCES: Moore, N.: Dictionary of National Biography. N. Y.: Macmillan Co., 1900, Vol. 62, p. 382; Jenkinson, S.: John Woodall, Surgeon Royal Navy. J. Royal Naval Med. Serv. 26: 107, 1940; McDonald, D.: Dr. John Woodall and his treatment of scurvy. Trans. Royal Soc. Trop. Med. & Hyg. 48: 361, 1954; McDonald, D.: Surgeon's two and a barber. London: Wm. Heinemann, 1950.—*Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.*



CURRENT COMMENT

Making Food Worth Talking About[1]

HELEN A. BUIK

Manager of Restaurants,
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Toronto, Canada

TO TALK about food is one thing; it is basic in our business—the bread and butter of our profession—but food to talk about is another thing. It is the ultimate in our business, the putting of food into its "party dress."

What is this party dress? It is the beautiful texture of our cake and its delicate frosting; the chiffon complementing our pastry; garnishes which are the flowers and embroidery, highlighting the food which they grace; the use of color, imaginative arrangements, succulence, aroma, piquancy, and flavor. All these are the party dress which makes food worth talking about.

There are party dresses for different seasons and different occasions. It is my purpose to discuss what the various markets and seasons offer in the way of party dress, whether it be formal or informal, for the exclusive dining room, the hospital tray, or the cafeteria counter. These seasonal offerings are ours to use. We are the coutouriers, the designers, and the craftsmen, and our workshops are our kitchens.

Of course, there can be no overlooking the fact that food, to be worthy of party dress, must be basically good. There must be the right materials in quality and choice, then the proper recipe and method of preparation, and after *that*, the party dress. The party dress requires imagination and planning, but it need not be costly. For example, you might hesitate to add an olive or a gherkin to a salad plate because of the cost, but instead you might use other, less expensive items.

Menu Ideas

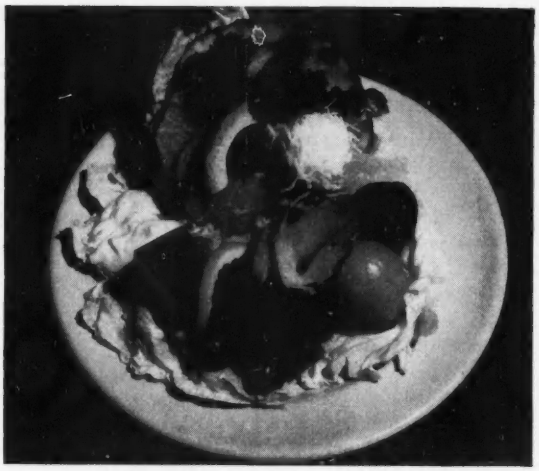
Let me illustrate such ideas by telling you some of the menu items served in our Georgian Room. This is the room where our more expensive foods are served. We also have lower priced cafeterias, and many of our Georgian Room combinations are used, with adaptations, in these cafeterias.

[1] Presented at the 39th Annual Meeting of The American Dietetic Association in Milwaukee, on October 11, 1956.

One of our Georgian Room specialties is the fruit salad plate which is illustrated. It contains: lettuce, watercress, a base of whipped cream and fruit, orange slices, grapefruit sections, apple wedge, canteloupe ball, cream cheese rolled in coconut, orange twist, pale green marshmallow bonbon, watermelon wedge, glazed prune, red fresh fruit jelly, green grapes, pineapple, avocado, peach, almond, and pineapple dressing (1 part mild boiled dressing, 4 parts whipped cream, plus drained, crushed pineapple, and browned, sliced almonds).

The Georgian Room fruit salad with avocado dressing has the same base plus puréed avocado, which adds a little green coloring. Another Georgian Room fruit salad is served in half a cantaloupe with a bramble cream dressing.

Each of these salads is made up of at least sixteen items. They are built up with layers of head lettuce to "show off" the salad and are quite different in structure from the usual flat salad plate. They are made on an assembly line, based on a time-and-motion study (see photograph, page 133). The food cost is about 36 cents per plate.



Georgian Room Fruit Salad Plate

Our cafeteria fruit salad plate (food cost 16 cents) and cafeteria fruit salad bowl (food cost, 18 cents) are similar, but somewhat less elaborate.

Georgian Room vegetable salad plates (food cost about 28 cents) are made up of three lettuce cups. One may contain potato salad, one cabbage, and one cottage cheese—each with its own garnish. Vegetable salads always have some protein, also, either as a salad or as a garnish, and in addition have a fruit garnish. The vegetable salad served in the cafeterias is a simpler adaptation of the Georgian Room version, with a cost of 17 cents.

The menu of the Georgian Room also features a plate for the shopper consisting of soup, small salad, and sandwich (also made on an assembly line). The soup could be a cream soup.

Salad Assembly Line for One Worker

1. Using straight-line production, the salad worker first places three lettuce cups on each of five plates, keeping in mind what each cup will contain, since some will need to be firmer and larger than others. This allows use of one complete head of lettuce before starting a second.

2. Lettuce cups are padded with shredded lettuce, as needed. To keep them in proper position and to achieve height, they may be propped with ribs of lettuce.

3. Using scoop, worker fills the main lettuce cup on each plate, which now forms the basis for garnishes.

4. In a similar manner, the second and third cups are filled.

5. Plates are now ready for garnishes. Worker picks up five garnishes at a time, using both hands where possible.

6. Garnishes are placed on plate so that each item on the plate will show distinctly. Garnishes are placed to achieve upward line and to gain height. Most frequently, they are placed squarely on top of the filled lettuce cups. Special attention is paid to contrast in color, flavor, and texture of garnishes. Celery hearts, parsley, watercress, and/or mint are the final garnishes.

7. The salad worker now places the five completed salads on a tray and "hustles" them into the refrigerator to remain until serving time.

Turning to the hot side of the kitchen for inspiration, we offer a hot vegetable plate. Here again, the plate has a protein garnish, and much of its appeal is due to the color scheme. Your own color chart of vegetables should be helpful in planning such a plate.

Buffets

We have found a buffet in the cafeterias to be interesting and rewarding both to the workers and the customers. Try it first at a time when you are likely to have a comparatively small number of customers, because it may cause a traffic jam! We have the server put the meat or fish on the plate and then hand it to the customer to add relishes and garnishes. We emphasize the use of color, and in season employ flowers for counter decoration—although this is just the regular cafeteria counter.

Our Georgian Room buffet, on the other hand, is a more elaborate set up. The buffet itself is simple; we use two-seater tables on top of which is corrugated cardboard, then dry ice and more corrugated cardboard, and finally a sheet of metal to keep it smooth. A cloth tops all of this before the food is displayed. The dry ice lasts for 6 hr. and keeps the food very cold. A simple centerpiece on the buffet is effective and not at all costly. For instance, we may use a wicker basket full of unhulled strawberries spilling out onto a tray, and a few green leaves of huckleberry; or, the horn of plenty filled with fall fruits—grapes, pears, a small pumpkin, and so on.

Garnishes

We feel that garnishes are the "buttons and bows" of the party dress. Table 1 lists inexpensive garnishes which we use, with their costs. These were compiled, using an average food cost plus labor and overhead.

Garnishes are a matter of planning and organization. They may be produced by hand labor using a board and paring knife, waffle cutter, potato baller, small slicer with a gravity-feed fitted on a slicing machine, or with a completely automatic electric slicer.

Desserts and China

A party dress always needs a setting, and to enhance party food, desserts particularly can be displayed on beautiful china, carefully chosen. Some of the following ideas, I am sure, would be adaptable to other types of food service, both as to food and as to setting.

French orange cream pie (orange filling, walnuts, or filling with cream) would be most tempting on a green pottery plate called "Galaware." For chocolate fudge pie, which is a chocolate brownie mixture, we would suggest Wedgewood blue. Simple desserts of watermelon with fresh fruit could appear on Wedgewood "Halford," while honey dew melon with fresh fruit could be placed on a copy of an old Adams, White Ironstone crockery. Raspberry Bavarian whipped cream torte could be served on Royal Doulton's "Queen Anne's Lace," while glass plates would be appropriate for whole Bavarian whipped cream torte. Wedgewood "Yellow Pimpernel" might be suitable for a chocolate fudge slice (sugar, butter, egg yolks, whites, crumbs top and bottom), while for caramel squares with ice cream and butterscotch sauce, the "Blue Star" pattern of Suzy Cooper might be better.

TABLE 1 **Cost of garnishes**

Garnish	QUANTITY	TIME	TYPE OF OPERATION	COUNT	AVERAGE FOOD COST	LABOR COST*	OVERHEAD COST†	TOTAL COST	UNIT COST
		min.							
Fruit Garnishes									
Apple wedges melba (skin on) ($.48/doz.)	½ doz.	5	hand	120 (20/apple)	$0.24	$0.075	$0.025	$0.34	$0.003/wedge
Apricots—fresh (10 small/lb.)									
Halves	1 lb.	5	hand	20	.30	.675	.025	.40	.02/half
Wedges	1 lb.	6	hand	40	.30	.09	.03	.42	.01/wedge
Avocado, fresh, slices	1 only	3	hand (peel & slice)	30	.30	.045	.01	.35	.015/slice
Berries									
Fresh strawberries	1 pt.	2	hand (wash & sort)	50	.25	.03	.01	.29	.006/garnish
Raspberries	1 pt.	2	hand (wash & sort)	50 garnishes of 3 berries each	.30	.03	.01	.34	.007/garnish
Blueberries	1 pt.	2	hand (wash & sort)	100	.20	.03	.01	.24	.002/garnish
Coconut—fresh shredded (from 1 nut)	1 pt.	12	machine	60 garnishes	.25	.18	.06	.49	.008/garnish
Cherries, fresh Bing	1 lb.	2	hand (wash & sort)	60 cherries	.40	.03	.01	.44	.007/garnish
Dates, sugared	1 lb.	3	hand sugared	60 dates	.10	.045	.01	.15	.003/date
Grapes, fresh clusters of three									
Green	2 lb.	5	hand	20 clusters	.26	.075	.025	.36	.018/cluster
Red	2 lb.	5	hand	14 clusters	.26	.075	.25	.36	.021/cluster
Blue	2 lb.	5	hand	14 clusters	.36	.075	.25	.46	.031/cluster
Tangerines, fresh—section, membrane left on	6 only	5	hand	60 sections	.25	.075	.25	0.35	.006/section
Grapefruit, fresh—section	1 doz.	18	hand	144 sections	2.06	.18	.095	2.33	.015/section
Kumquats, fresh	1 qt.	1	hand	35	.35	.015	.005	.37	.011/kumquat
Limes, fresh									
Twists	6 only	2	machine	6 twists	.18	.03	.01	.22	.004/twist
Wedges	6 only	3	hand	48 wedges	.18	.045	.01	.23	.005/wedge
Lemons, fresh									
Twists	6 only	2	machine	84 twists	.15	.003	.01	.19	.003/twist
Wedges	6 only	3	hand	72 wedges	.15	.045	.01	.20	.004/wedge
Oranges, fresh									
Twists	6 only	2	machine	36 twists	.40	.03	.01	.44	.012/twist
Sliced, skin off	6 only	7	hand & machine	36 slices	.50	.09	.03	.52	.013/slice
Sections	6 only	9	hand	48 sections	.50	.11	.04	.55	.014/section
Cantaloupe									
Twist	1 only	3	machine	30 twists	.21	.045	.01	.26	.009/twist
Balls	1 only	5	hand	20 balls	.21	.075	.02	.30	.015/ball
Plum, fresh									
Half	1 lb.	2	hand	24 halves	.35	.003	.01	.39	.015/half
Wedge	1 lb.	5	hand	48 wedges	.35	.075	.02	.44	.009/wedge
Peach, fresh									
Half	1 doz.	10	hand (peel & halve)	24 halves	.56	.15	.05	.76	.03/half
Wedge	1 doz.	12	hand	96 wedges	.56	.18	.06	.60	.008/wedge
Pear, fresh									
Half	1 doz.	5	hand (halve & core)	24 halves	.54	.075	.02	.63	.025/half
Wedge	1 doz.	5	hand	96 wedges	.54	.075	.02	.63	.006/wedge
Pineapple, fresh									
Cone	1 only	30	hand	60 cones	.30	.47	.16	.93	.016/cone
Wedge	1 only	15	hand & machine	60 wedges	.30	.235	.08	.61	.01/wedge
Twist	1 only	15	machine	30 slices	.30	.235	.08	.61	.02/twist
Diced	1 only	15	hand & machine	50 garnishes of 3 cubes each	.30	.235	.08	.61	.012/garnish
Pomegranate, seeds	1 only	2	hand	40 garnishes	.10	.03	.01	.14	.003/garnish
Rhubarb, curls	1 lb.	10		100 curls	.10	.15	.05	.30	.003/garnish
Red currant, clusters	1 pt.	2	hand (wash & sort)	50 garnishes	.30	.03	.01	.34	.003/garnish
Vegetable Garnishes									
Beets, cooked									
Diced	1 qt.	4.5	hand	80 garnishes	.09	.07	.025	.185	.002/garnish
Sliced	1 qt.	4.5	hand	40 slices	.09	.07	.025	.185	.004/slice
Waffled	1 qt.	5.5	hand	40 waffles	.09	.085	.03	.21	.005/waffle
Wedges	1 qt.	4.5	hand	40 wedges	.09	.07	.025	.185	.004/wedge
Julienned	1 qt.	3		80 garnishes	.09	.07	.025	.185	.002/garnish
Cabbage, red—shredded	1 qt.	1	machine	80 garnishes	.15	.015	.005	.17	.01/garnish
Cucumber									
Twist	1 only	1.5	machine	45 garnishes	.10	.025	.01	.14	.01/garnish
Sliced	1 only	1.5	machine	45 slices	.10	.025	.01	.14	.003/twist
Diced	1 only	1.5	hand	40 garnishes	.10	.025	.01	.14	.003/garnish
Corn—kernels	1 tin	1	hand (to open can)	60 garnishes	.18	.015	.005	.20	.006/garnish
Peas, frosted	1 lb.	2	hand (to heat)	80 garnishes	.23	.03	.01	.27	.003/garnish

TABLE 1 (Concluded)

Garnish	QUANTITY	TIME	TYPE OF OPERATION	COUNT	AVERAGE FOOD COST	LABOR COST*	OVERHEAD COST†	TOTAL COST	UNIT COST
				Vegetable Garnishes (Concluded)					
		min.							
Celery									
Hearts	1 doz.	2.5	hand	12 hearts	.24	.04	.01	.29	.022/heart
Curls	1 doz.	5	hand	12 curls	.13	.075	.025	.23	.021/curl
Carrots									
Waffled	1 qt.	8	hand	40 garnishes	.14	.12	.04	.30	.007/waffle
Curls	1 qt.	8	machine	40 garnishes	.14	.12	.04	.30	.007/curl
Diced	1 qt.	8	hand	40 garnishes	.14	.12	.04	.30	.007/cube
Julienned	1 qt.	8	machine	40 garnishes	.14	.12	.04	.30	.007/stick
Shredded	1 qt.	8	machine	40 garnishes	.14	.12	.04	.30	.007/garnish
Fingers	1 qt.	8	hand	40 garnishes	.14	.12	.04	.30	.007/finger
Onion rings									
Plain	1 pt.	2	machine	60 garnishes	.05	.025	.01	.08	.001/ring
Spanish	1 pt.	2	machine	60 garnishes	.10	.025	.01	.13	.002/ring
Italian red	1 pt.	2	machine	60 garnishes	.16	.025	.01	.19	.003/ring
Pepper, green									
Rings	1 qt.	4.5	machine	120 rings	.40	.10	.04	.54	.004/ring
Chopped	1 pt.	3	hand	80 garnishes	.40	.04	.01	.45	.006/garnish
Pepper, red									
Rings	1 qt.	4.5	machine	120 rings	.48	.10	.04	.62	.005/ring
Chopped	1 pt.	3	hand	80 garnishes	.48	.04	.01	.53	.007/garnish
Spinach, shredded	1 qt.	2.5	machine	60 garnishes	.18	.04	.015	.24	.004/garnish
Turnip, julienned	1 qt.	2	machine	80 garnishes	.11	.03	.01	.15	.002/garnish
Tomatoes									
Sliced	1 lb.	2	hand	16 slices	.07	.03	.01	.11	.016/slice
Wedges	1 lb.	2	hand	24 wedges	.07	.03	.01	.11	.014/wedge
Radishes									
Roses	1 doz.	12	hand	12 roses	.10	.19	.06	.36	.03/rose
Sliced	1 qt.	10	machine	80 garnishes	.08	.16	.05	.29	.007/slice
Chopped	1 pt.	1	machine	80 garnishes	.08	.01	.005	.10	.001/garnish
Pimiento strips	1 tin (5 oz.)	2	hand (to open)	170 strips	.17	.025	.01	.20	.001/slice
				Protein Garnish					
Eggs									
Sliced	1 doz.	6	hand and machine	72 slices	.46	.09	.03	.60	.001/slice
Wedges	1 doz.	6	hand	48 wedges	.46	.09	.03	.60	.013/wedge

* Labor rates, 95 cents an hour for preparation room work.
† Overhead rate, 32 cents an hour for preparation room work.

Incidentally, the kind of ice cream which you use is important. We make our own, which is about 20 per cent butter fat. People come a long way to enjoy it. Not long ago some tourists from the southern part of the United States mentioned that their grandmother had had some of our ice cream years ago and described it as "velvet" ice cream. They wanted to enjoy it, too. Then there was the tourist who wasn't hungry, and wanted only ice cream; she eventually ate four dishes of it.

Of course, for people on modified diets, such desserts could not be served. However, my hospital friends in Toronto tell me that only one-third of the patient population in the average hospital is on an adjusted diet. This means that two-thirds of the patients, as well as the hospital's cafeteria customers, could enjoy them, or adaptations of them. There is nothing more satisfying or which leaves a better impression than a delicious dessert to top off a meal.

You may feel that these suggestions are expensive; however, at least in a pay cafeteria, it would seem to me that they could be sold, provided they were attractively displayed and the customer received his money's worth in deliciousness the first time.

It is, of course, all very well to *talk* about finished party food as it is served, but how are we going to accomplish this? There are many factors to be considered, of which I would like to discuss just three—but three very important ones. We shall call them the three "T's": training, timing, and tasting.

Training

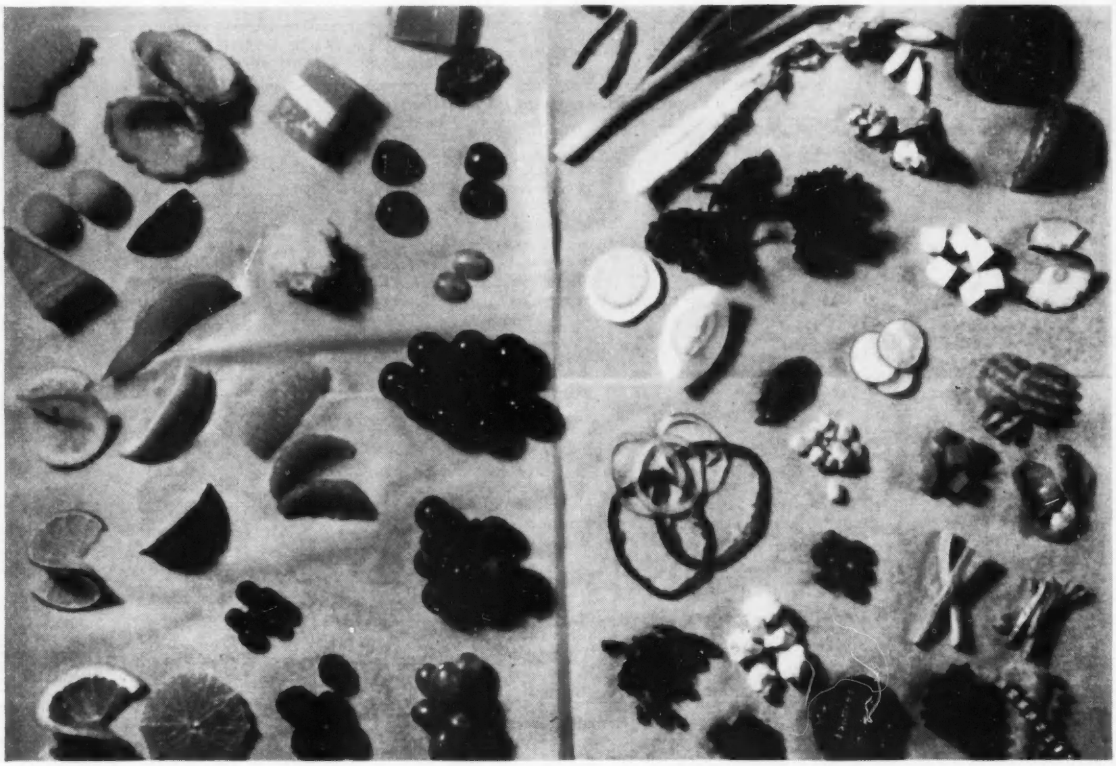
Training must, of course, begin at the top. As managers or directors of dietetics, we ourselves must continue to train ourselves by:

(a) *Constantly observing.* What food do other people produce? We must be alert to see this, to recognize better things, and then be willing to improve our own items.

(b) *Reading.* Professional growth is a continuing process. We must keep up to date with the literature of our profession—the dietetic journals, women's magazines, food magazines, papers, and so on. Our bedside tables can include at least one food periodical.

(c) *Thinking positively about our own operation.* We must train ourselves to perceive what needs to be improved, to think through our problems and to formulate courses of action.

We also have the problem of training assistant dietitians to:



Representative Inexpensive Garnishes

Fruit garnishes (roughly top to bottom, left to right)
First row: cantaloupe waffle, honey dew balls, watermelon wedge, lemon twist, lime twist, orange twist
Second row: cantaloupe twist, plum wedge, pear wedge, lemon wedge, lime wedge, orange slice
Third row: yellow ribbon jelly, coconut bonbon, grapefruit section, orange section, fresh blueberries, fresh raspberries
Fourth row: green jelly, sugared date, grape halves (blue, red, and green), grape clusters (red, blue, and green)

Vegetable and egg garnishes
First row: pimiento strips, green onion, celery heart, parsley, mint, egg slice, egg wedge, rings of red and green pepper, Italian red onion rings, shredded spinach
Second row: radishes—wings, chopped, rose, slice, tomato jelly, corn kernels, green peas, cauliflowerettes, diced beets, waffled and sliced beet, waffled beet wedge
Last row: tomato slice, tomato wedge, cucumber twist, diced cucumber, carrots—waffled, diced, curls, plain sticks, Julienned waffled sticks

(a) *Supervise.* We must first set our objective and develop our assistants so that they will perform at the best level. We must establish high standards and expect them to meet them, but help them to do it too.

(b) *Deputize* the lesser jobs to others.

(c) *Train other workers,* emphasizing that they must be patient and may need to show the worker how to do a job again and again before they achieve perfection.

Training, or probably re-training our staffs is another area to which we should give attention, in various ways:

(a) *In classes.* Whenever there is a group large enough and when the time can be spared, a class can be conducted, i.e., for steam table servers to teach them how to serve, or the proper customer approach, or the care and handling of their equipment.

(b) *On-the-job training.* This is a constant need. You will agree that we should have a positive attitude towards training, not just a corrective one.

(c) *Discussion groups.* A carefully planned discussion bringing together a small group of people with common interests or problems can be most rewarding.

In our organization, our trainers are workers chosen from each section of a department to assist the dietitians in the induction and training of new staff. The trainers are brought together in groups to discuss their problems and work out solutions. This, of course, is part of a development program and gives them recognition and a sense of responsibility.

Suggested Garnishes for Moderate-Cost Small Salads

Potato Salad
Cucumber twist, radish rose, Julienned carrot
Cucumber twist, egg slice, shredded red cabbage
Cucumber twist, mushroom cap, red pepper ring
Green pepper ring, egg wedge, Julienned beet
Green pepper ring, tomato wedge, corn kernels

Harvard Beet Salad
Cucumber twist, egg slice, red pepper ring
Green pepper ring, red pepper ring, corn kernels
Egg slice, shredded spinach, red pepper ring

Carrot Salad
In pineapple cone, endive curl, three radish slices
Cucumber twist, mushroom cap (cooked), red pepper ring
Green pepper ring, pineapple wedge, strawberry

Cauliflower (Cooked) in French Dressing
Green pepper ring, carrot curls
Green pepper ring, tomato wedge

Brussels Sprouts in French Dressing
Red pepper ring, mushroom cap
Radish rose, French fried onion ring

Broccoli in French Dressing
Red pepper ring, cheese wedge

Asparagus in French Dressing
Red pepper ring, egg wedge

Sliced Tomatoes in French Dressing
Green pepper ring, carrot curls
Endive curl, French fried onion ring

Lettuce Wedge with Thousand Island Dressing
Green pepper ring, red pepper ring
Green pepper ring, carrot curls

Cucumbers in Sour Cream Dressing
Green pepper ring, paprika

Salad Greens
Green pepper ring, tomato wedge, grated cheese

Cabbage Salad
Green pepper ring, red pepper ring, apricot wedge
Green pepper ring, orange section, radish slices
Green pepper ring, pineapple wedge, raspberries
Red pepper ring, apricot half, blueberries
Red pepper ring, kumquat, cucumber twist
Green pepper ring, tomato wedge, carrot curls
Green pepper ring, radish rose, carrot sticks

Cottage Cheese
Green pepper ring, tomato wedge
Green pepper ring, red pepper ring, carrot waffle
Cucumber twist, beet wedge, carrot curls
Lime twist, red currant clusters, mint
Peach section, blueberries, mint
In a pineapple cone, mint, strawberry

Timing

Our objective is to have food come out of the oven or refrigerator at the moment it is needed—an extremely easy thing to say, but so difficult to accomplish. We want to serve fresh cookies which have been baked only an hour or so before serving; fruit pie that is still warm; crisp cooked vegetables which have just finished boiling, steaming, or baking and are served as quickly as one would at home. Since the highly undesirable process of aging begins almost as the food comes from the oven, steamer, or kettle, let us aim to serve that food before it becomes a moment older. We have much to live up to when patients and customers compare our food with home-cooked meals, *and they all do it*!

The practice of roasting meat one day, chilling, slicing on a machine, and reheating it the next day will not produce that home-baked flavor. Pies that the night baker makes in the wee small hours may, in the morning be arrayed on a shelf ready for us to serve, but what a pity not to be able to set them before our patients or our cafeteria customers right then and there. In many cases, much reorganization will be necessary to serve a freshly cooked roast, or warm pies. Could we not do something to have our pies pop out of the oven close to the time of consumption?

Freezing has become both a boon and a menace. I wonder if too many people don't freeze too much for too long. The objective, of course, is to arrest aging, and it does work well with some products. When this is true and when it helps smooth out production, let's do it; but again, let's serve that defrosted food right away as soon as it is ready. Timing is *so* important.

Tasting

We all agree on the value of tasting and tasting constantly, *but do we do it*? We need to taste certain of the raw ingredients before we use them. Remember the butter that was "off," which spoiled the otherwise perfect cake, or the ice cream that had a sour taste, or the pumpkin pie filling made with frozen eggs that were not at their best, or, the walnuts that were just a little bit rancid or bitter?

Tasting during production saves many a slip and many a dollar and, of course, tasting at the time of serving is essential. We set a definite time before each meal for the dietitian and chef or two dietitians to taste all the food.

As a control, in addition to regular daily tasting, we operate a test kitchen, the main purpose of which is to maintain our established standards and to develop new techniques and recipes. This is a separate section of our departments. Its specific duties are:

(a) To compare similar products from our various production kitchens, as well as from outside sources.

(b) To test and develop new recipes and increase them from small to large quantities.

(c) To examine new products which come on the market.

Summary

We have considered some of the basic techniques of our profession: the training and motivation of our staff; the timing of our efforts; the full use of equipment; use of each season's offerings; tasting and re-tasting; and test kitchen control.

Having observed these techniques, we have succeeded if the result is "food worth talking about"—food which is nutritious, beautifully arranged, and properly seasoned; food which will delight patient or customer alike. We are the coutouriers, the designers, and the craftsmen; as such, we give a "party dress" to our efforts.

The Menu—Determining Factor in Food Service Layout[1]

MELVIN DYKMAN

Dykman's Restaurants
Madison, Wisconsin

WHEN WE planned a new restaurant in Madison two years ago, it was, of course, our aim to incorporate into it the utmost simplification of each process in the service of food. We all know that simplification of processes means reduced costs. With the constant increase in the labor cost of performing almost any given task, simplification would be worth achieving, if it could do no more than to cut labor cost—that all-important figure that plagues all food service operators. If it could eliminate unnecessary steps, various delays, moments of indecision, or other nonproductive use of time, simplification would be worth while, even if for no other reason.

But we had expectations of even greater advantages which might be achieved by simplifying our processes. We believed we could achieve more fully by means of simplification what had always been our aim—"good food and fast service at reasonable prices." In other words, we wanted to provide *better* food and *faster* service at *more* reasonable prices.

Where to begin and how to produce such a state of efficiency that all operations hum along in high gear with no waste motions and without a hitch or a trouble spot were the problems. Frankly, we still *wish* we knew the answer to that sublime state. But we had to start somewhere. What were some of the trouble and confusion spots? Where were the delays originating? And, above all, what could we do about them?

The Menu, the Culprit

What we did about them has been a process of evolution rather than revolution, of trying to profit from past trial and error. In trying to track down the basic cause of the trouble spots, the delays, the moments of indecision and confusion, one significant fact invariably emerged: it was the menu itself that was the real culprit.

For instance, we had tried the use of microphones at each waitress station to relay orders to the kitchen, because they can save time and steps and greatly facilitate speedy service. However, they can also create so much confusion and error that the opposite effect is achieved. There can be no cause of greater confusion and indecision in the kitchen than many orders pouring in over the "mike," such as: "Two roast beef dinners, one with mashed potatoes, and hold the potatoes on the other," or "One hamburger with fried onions," and "Beef stew with fresh vegetables on corn biscuit."

We were almost ready to throw out the microphones before we found the answer to most of the trouble right in the menu itself. Before we could use our carefully integrated stations and our compact, functional kitchens efficiently, we first had to integrate our menu into the whole scheme.

We wanted efficiency in the kitchen, so that the chef could perform all necessary tasks with no waste motions, with all his provisions completely at hand at no more than arm's length. Again, we found that this was possible only by means of simplifying and integrating our menu.

When we came to analyze our dishwashing problems, the menu was again found to be the basic cause of trouble, and in the same way that it had complicated and confused the use of the microphones. Especially during rush periods, there was no time for the dishwasher to stack in the proper order the various sized dishes our menu required. Before we could simplify dishwashing, we had to simplify our menu.

Revamping the Menu

Thus working on the menu appeared to be the first step toward greater all-around efficiency. Our menu had to change. For the faster service we wanted, for the large customer turnover, and for conservation of the customer's time as well as our own, the many minutes spent in reading both a printed permanent menu as well as a daily mimeographed menu should be eliminated. Space on the menu formerly devoted to items infrequently ordered had to be used for popular specialties only.

[1] Presented at the 39th Annual Meeting of The American Dietetic Association in Milwaukee, on October 10, 1956.

Making decisions as to various choices or combinations can take time and produce confusion and error both for the customer and for ourselves. Therefore, we decided that our menu should offer only popularly favored items and that a premium should be charged for substitutions. It should be quickly read, but be so explicit as to mean the same thing to all who read it—no foreign words, no adjectives except those related to quality or quantity of food—such as "four ounces U. S. Prime hamburger on a toasted bun."

The waitress at the microphone and the kitchen workers also needed a simple word or phrase which invariably meant the same thing to everyone. But learning takes time, and the menu changes each day. Therefore each item on the menu had to contain a key word or phrase, to be seen at a single glance, both at the microphones and at each kitchen station where copies of the menu are posted. For this purpose, one word of each item of the menu is capitalized and underlined. For example, under the caption, "Dykman favorites," which are stated to be dinners served with French fries, roll, butter, salad, and beverage," we have, "grilled U. S. Prime hamburger steak." Only the one word, "hamburger," is typed in solid capitals and underlined. This is the key word for the waitress, and she, therefore, orders this entire dinner with one word, "hamburger." The daily special, which is ordered by approximately 50 per cent of our customers, is designated over the microphone simply by the underlined word in the menu, "special."

Thus, by condensing our menu, by eliminating all but popularly favored items, and by incorporating into it easily-transmitted key words, we made possible the kind of layout which would result in far greater efficiency in our food service.

Dish Sizes Standardized

Dishes could be washed faster and with less breakage as a result of our simplified and integrated menu. Because our menu was designed to require only three sizes of dishes, handling and storage of dishes were greatly facilitated. We use a 4-in. plate for saucer, bread and butter, and for all small orders. A 7-oz. cup serves for soup, coffee, fruit, puddings, and ice cream. An 8-in. plate with narrow rim is used for all other orders with the exception of cereals and sundaes for which we use a small number of bowls.

Limiting the sizes of our dishes permitted the use of more efficient handling methods and devices. In planning our new layout, we could use small, easily-handled trays on carts to move soiled dishes to the dishwasher by means of a gravity-operated conveyor belt. Another such conveyor belt could move from the kitchen to the waitress stations.

Simplified Layout, Better Service

Our simplified menu also made possible the use of a small, compact kitchen in the new restaurant, a kitchen operated completely by one chef who could be surrounded by all necessary equipment and supplies. He would "be in business for himself," free from all confusion and distraction and interference of other employees. Each waitress would have her own station within easy reach of the conveyor belt. The dishwashing department in the new restaurant would be handled by one operator in a 6- by 6-ft. space.

Thus we could design a thirty-stool restaurant in less than 800 sq. ft. of floor space. And a limited number of employees could—and now do—handle a daily customer turnover of between 30 and 40 per cent.

What this simplification has meant to our customers in the new restaurant is perhaps best summed up by the fact that in 1 min. 55 seconds after a customer sits down during the noon hour rush to order the daily special, he can begin to eat it steaming hot. The special takes 6 seconds of the chef's time, no order more than 2 min.

Quest for Quality—A Capsule View[1]

SINA FAYE FOWLER

Dietitian
Western Electric Company, Inc.,
Chicago

QUALITY FOOD is the ultimate objective of all dietitians, but quality in quantity is a special problem for dietitians associated with inplant feeding. The methods we use to solve this problem will of necessity vary. There are limitations imposed by physical layout, equipment, personnel, and supplies—yet all of us are striving for the same goal. I will attempt to give you a capsule view of our quest for quality at the Hawthorne Works of Western Electric Company in Chicago. Our food service is expansive, with restaurants in thirteen locations serving about 32,000 customers a day. Most of our restaurants are open for two shifts, three are open for only one shift, and two are open for three shifts. Considerable "chow" disappears when our 26,000 plant employees "get going."

Purchasing, testing, menu writing, and other phases of management are carried on from a central office. A central butcher shop fabricates most of the meat we use. (A volume of 12,000 pork chops or 8,000 steaks is needed for one meal.) Our bake shop,

[1] Presented at the 39th Annual Meeting of The American Dietetic Association in Milwaukee, on October 10, 1956.

producing about 1,000 plain rolls, 3,000 sweet rolls, 80 pies, and 50 cakes a day, supplies only a small portion of our needs.

Each restaurant location, whether serving 500 or 10,000, must conform to the over-all pattern of management. Location supervisors are responsible for serving the accepted menu at established prices to the general satisfaction of customers and management. Recognizing the variety of demands placed on supervisors, we have carefully established definite procedures of management that produce standardization of operation and result in uniform service of high quality food throughout the plant.

Menus and Recipes

It has often been said that the menu is the hub around which all other activities rotate. If the menu does not take into consideration all of the factors involved in its preparation, then all sorts of complications arise. The cook will say, "There is too much labor; I do not have oven space"; the counter supervisor will say, "There are too many items for the steam table; there are too many high cost food items"; the butcher will say, "There is too much meat to fabricate"; the customers will say "What? Liver again! We just had it last week."

Much care must go into our menu development if peace and quiet are to reign, cost standards are to be realized, and customers are to be served good, wholesome, and appetizing food. The advent of the cycle menu has done much to simplify menu planning, although, in my opinion, the production of a workable cycle is still a major fete. Three cycles are used, each being rotated four times. This results in three sets of menus for the year. Corrections are made to eliminate errors in the cycle after it has been used once. The cycle menu, as planned, is flexible; when necessary, changes are made for holidays, fast days, and the introduction of seasonal and new items.

Several advantages accrue to the cycle method. (a) Time is saved in menu planning. (b) Records are established which show the number of portions required on a given menu. (c) Food orders are simplified. (d) There is less waste from overproduction. (e) Daily production is equalized. (f) It is easier to standardize recipes. We have used the cycle menu for three years and feel that it has contributed much to the efficiency of our operation.

Closely allied with the menu and essential to quality and cost control is the use of standardized recipes. All of the recipes we use are standardized to meet our particular needs. Most are standardized in 100-portion quantities. Exceptions to this are the soup recipes which yield 8 gal., 20 gal., or 50 gal. and sauce recipes which yield 2 gal. or 10 gal.

A color system was devised as an aid in keeping the recipe file in order. For example, meats are printed on blue cards, meat extenders on green, and soup on white cards.

All new recipes are first served in our main restaurant, not only to check the accuracy of the recipe but also to test serving directions and to make a cost check. I am not naive enough to think that cooks follow all recipes to the letter, but standardized recipes are a good beginning toward the production of appetizing food with a minimum loss of food value.

Purchasing

The quality of food we serve is, in a large measure, controlled by the quality that we purchase. However, we do not necessarily always buy the most expensive item. Often a less expensive one may be as desirable for our use. For example, U.S. Grade B peach halves are as acceptable as U.S. Grade A (fancy) for all-purpose use. The quality that we expect is set forth in written specifications covering over one hundred food items, and also about five hundred items of equipment and supply. In many cases, second and third choices are listed so that the initiative and flexibility of our operation are not handicapped. These specifications do away with confusion and provide a solid basis for buying, receiving, and cost-price control.

Canned goods represent a substantial percentage of our food purchases. Insofar as practical, contracts for purchases are made in the fall to cover nine- to twelve-month needs. Our procedure for selecting calls for extensive testing. Samples of U.S. Grade B (choice) fruits and U.S. Grade A (fancy) vegetables (and miscellaneous canned items) are requested from purveyors. These samples are tested for the usual qualifying factors of color, texture, flavor, count, or drained weight. If samples of a Grade B item are unacceptable, then samples of Grade A are procured and selection is then made from that grade. Price, although a factor, is secondary to quality considerations. Each delivery of canned goods is covered by a government grading certificate which confirms that we are receiving the U.S. grade specified.

Our fresh fruit and vegetable orders are also inspected by government inspectors. They verify the kind of product, the number and kind of container, brand name, the quality and condition, and net weight. As proof of this inspection, each delivery is accompanied by a "Report of Fresh Fruit and Vegetable Inspection," and each package, basket, or sack is government stamped or sealed with a metal disk. A government grading certificate is received with each delivery of butter and eggs to attest to their quality.

Because meat seems to be the most important thing on the menu (or at least it is about the first item to receive criticism), considerable effort is put into procuring meat of good quality. We buy nothing in the line of meat or poultry unless it is government inspected and graded. These grades are set up in our specifications for meat buying, and we rigidly conform to these specifications. The grade we pur-

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chase depends on the menu item for which it is to be used. U.S. Good grade beef chuck is usually ordered for all ground meat items, and U.S. Choice beef round is ordered for Swiss steak and similar items. U.S. Prime is rarely purchased except for special occasions, and no meat graded less than U.S. Good is ever purchased. Few satisfactory preportioned items are purchased, although at times preportioned products are very desirable as labor savers. Veal cutlets, frankfurters, smoked pork links, thuringers, chicken legs, chicken breasts, and fish sticks are among the preportioned items we use. New products that appear to have merit for our use are carefully tested for quality and acceptability before being placed on the menu. However, for our Polish constituents, many new products do not have the menu appeal of Polish sausage and sauerkraut.

Sanitation

Last, but certainly not of less importance, is our devotion to sanitation. We recognize it, in all of its aspects, as basic to high standards of food service. Sanitation is something that does not just happen. It requires eternal vigilance and plenty of "push" from supervision. The restaurant organization competes with other plant organizations in safety and housekeeping contests. Unscheduled and unannounced monthly inspections cover all phases of housekeeping and equipment repair in every location. For the record, I might add that we are always close to the top if not the winner of the contest. The medical department also inspects restaurant facilities, the health of employees, and the sanitary handling of food. All food handling employees, through written and oral instruction and formal classes, are familiarized with sanitary procedures. Some of the food handling practices we have found effective in improving the quality of the food served and lessening the danger of contamination include:

(a) The elimination of "extra care" items from the menu for the period June 1 to September 15.

(b) The prevention of the multiplication of any bacteria present by holding food at temperatures either below 45°F. or above 145°F.

(c) Cooking hot food no sooner than it is needed, allowing only enough time to prepare it for portioning or transporting it to the counter.

(d) The use of excess processed food as soon as possible.

(e) Emphasizing the frequent and thorough washing of hands by employees, and the use of tongs, spoons, other serving equipment, or waxed paper for serving food.

Perhaps one of our most rigid tests determines the efficiency of our dishwashing operation. Once a month bacteriologists pay a surprise visit to each restaurant location in the plant and make a swab test and bacteria count on dishes, silver, glasses, and equipment. While most of the official reports indicate they are not only clean, but practically sterile, a high count, over 100, is something to be noted. This is a signal of trouble ahead. Every effort is then made to determine the cause and eliminate it.

Sanitation and quality in our food service are not achieved "hit and miss," and the battle for improvement is constantly waged.

Vitamin B_{12} in Milk and Cheese

Milk from Holsteins and Jerseys contains practically the same amount of vitamin B_{12} and remains unchanged, regardless of the cow's diet, according to reports from the U.S.D.A.'s Agricultural Research Center, Beltsville, Maryland. Using rat assay methods, the U.S.D.A. scientists also found that storage of raw milk in a household refrigerator at 32°F. for a maximum of three days had no effect on the B_{12} content.

Daily specialists at Beltsville believe that the reason milk is little affected by the cow's ration—provided adequate cobalt is supplied—is accounted for by the microbiologic synthesis of B_{12} in the rumen. The addition of cobalt to cow rations above the amount normally required failed to increase B_{12} content of the milk.

Tests of various types of cheese show that average vitamin B_{12} content of Cheddar cheese is 20.8 mcg. per kilogram; for processed Cheddar, it is 12.0 mcg. per kilogram, about three-fifths as much. No correlation was observed between mildness or sharpness of Cheddar cheese and its B_{12} content.

Natural Swiss cheese averages 36.2 mcg. per kilogram, or 1.75 times that of natural Cheddar, but processed Swiss cheese has about half the B_{12} potency of natural Swiss. Cottage cheese, with an average of 8.0 mcg. per kilogram, contains less than one-fourth the amount of Swiss cheese. The scientists believe that the B_{12} content of Swiss cheese is probably due to synthesis of the vitamin by propionic-acid bacteria involved in the manufacture of this cheese. Experiments indicate that little or no vitamin is destroyed during the manufacture and curing of Cheddar from pasteurized milk, about half of the original B_{12} in the milk going into the cheese and the rest into the whey.

Contributions of dairy sources to B_{12} intake have been calculated as follows: 1 qt. fluid whole milk furnishes on the average 6.7 mcg. One mcg. B_{12} can be obtained from the following amounts of various cheeses: natural Cheddar, 1.7 oz.; processed Cheddar, 2.9 oz.; processed Cheddar cheese food, 4.1 oz.; processed Cheddar cheese spread, 7.0 oz.; natural Swiss, 1.0 oz.; processed Swiss, 1.9 oz.; and cottage cheese, 4.4 oz.

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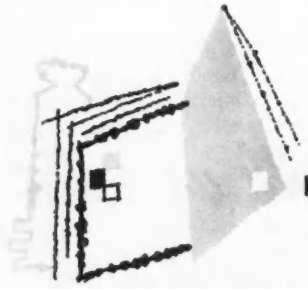


BOOK REVIEWS

Food for Longer Living. By Maurice Shefferman. New York: Whittier Books, Inc., 1956. Cloth. Pp. 181. Price $3.

The "dust-cover" of this book provides the reader with a limited but meaningful description of the author's self-styled claim to fame as a "respected pioneer in nutritional education." We learn that "a quarter of a century ago he was associated with one of the early pioneers in the nutrition movement in the United States." Curiosity tempts the scientist to speculate which of the many persons mentioned in the text is so honored.

Maurice Shefferman joined the Benedict Lust publications; was editorial supervisor of *Nature's Path Magazine* and the *Naturopath*, official publication of the American Naturopathic Association. He has contributed articles on health to *Physical Culture*, was a member of the staff of *Syndicate Publications*, and is still a contributor to it. At present, he is publisher and editor of *Balanced Foods Magazine*. Seventeen years ago he organized and became President of Balanced Foods, Inc., a large wholesale distributor of health and dietary foods. It was not surprising to note that the "credits" on the back page of the dust-cover were quotations from *Healthful Living Magazine*, National Dietary Foods Association, Benedict Lust Publications, and Syndicate Publications.

The reviewer sensed the clues to the puzzle of this book from attempting to learn what the author's educational and professional backgrounds were. The contents of the book left no question either about his lack of scientific background or his cleverness at blending a little truth with a good bit of nonsense. In the preface he writes: "There was an overpowering reason for writing this book—a need, as I saw it, to put down a great many words on paper that would make sense to a lot of people who have a very hazy idea that right food has any direct relationship to their health."

The author has indeed "put down a great many words," but in the opinion of this reviewer, the author's information is so hazy that the uninitiated in the science of nutrition may find that his haze evolves into a blinding fog.

On the first page of the first chapter, the reader comes face to face again with the writings of William Howard Hay. "In every case of so-called 'nervous breakdown' he found that a deeply toxic state—a body poisoned by carbon dioxide retention—was the root of the evil. In every case of this nature, detoxication and a proper diet of vital foods and essential nutrients showed amazingly gratifying results." Once again the ghost of the "Hay Diet" is brought out of the closet! For information re W. H. Hay see:

(a) William Howard Hay—Capitalizing Food Fads and Fancies. J.A.M.A. 100: 595, 1933.

(b) William Howard Hay—An Interesting Letter from an Ex-Patient. J.A.M.A. 106: 63, 1936.

(c) William Howard Hay and His "Corny" Dietetics. J.A.M.A. 112: 762, 1939.

Although Hay is given much credit by the author, scientists who will not be honored to find references to them nestled in the pages of this book will be really quite amazed at how some facts and some fancies about their contributions are presented. King, Goodhart, Jolliffe, and Spies unfortunately share honors for publicity with the Academy of Nutrition! (A book of this type always produces strange bedfellows for the scientists.)

Throughout the book, the reader hopefully looks for references to statements that are startling to say the very least. "The use of DDT and its even more poisonous relatives is responsible for an increase in disease according to medical reports." Whose medical reports? "Health authorities point to the catastrophic results—in the universal contamination of our food supply and the direct link to an increase in diseases which affect the heart, liver and gastro-intestinal tract" (pages 20 and 21). What health authorities? What is the evidence? But one should not expect to find a clear presentation of data, well documented, in a book of this type.

It is impossible to read this book without stopping short, rereading, and still wondering about the sequence of ideas, events, and facts. For example, "during the hot weather of summer when one perspires more freely, this may bring about an accelerated rate of loss of valuable minerals from the system. This is particularly the case with vitamin C . . ." What is the verification for the first statement? And, what is its relationship to the next statement? This information is not forthcoming in that chapter.

"Dr. Martin (American Academy of Nutrition) believes that a protein deficient diet may help to account for the increasing degenerative diseases of old age, affecting the heart, liver, kidneys, arteries and bones." May we have the data, please?

Among the other confusing "facts" are: "Magnesium is considered the sleep-promoting chemical and it refreshes the system. . . Sulphur is vital to good skin, hair and nails. It purifies and tones up the system. It is the beautifier."

One is reminded somewhat of the almost forgotten "doctor books," for the author discusses (among other subjects) the values of walking, colonic irrigations, freedom from poison ivy, and as expected, the "Five basic foods—Blackstrap Molasses, Brewer's Yeast, Skim Milk Powder, Wheat Germ, Yogurt."

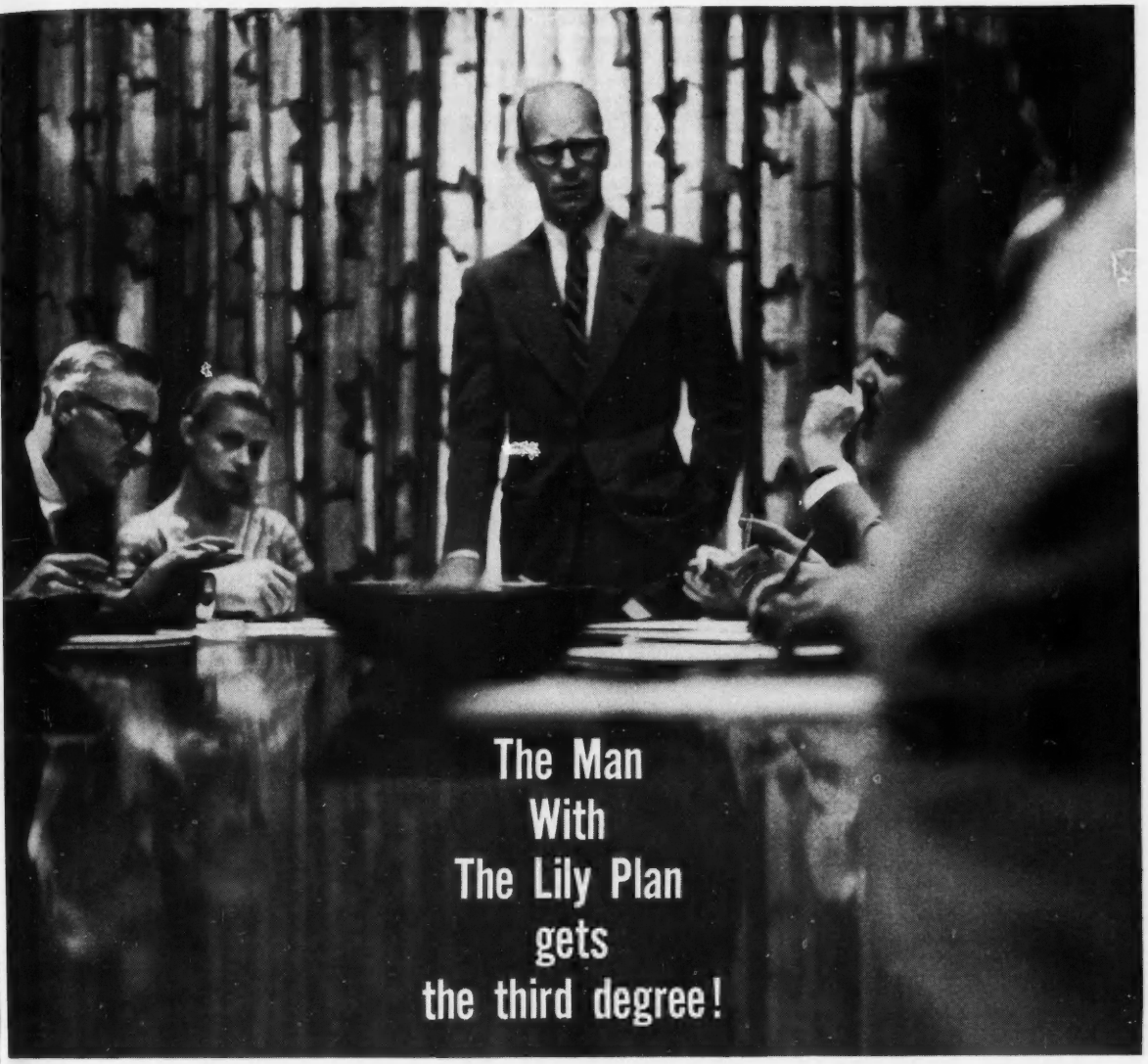
The last forty-six pages save the reader from narrative. Here are the recipes and then follow some welcome blank pages for additional recipes and comments.

This is another book to be added to the ever-growing list of those that provide the reader with a little truth, a lot of confusion, and the "health" stores with another justification for existence. It has no place in the libraries of professional workers and less use in the public library in your community. It is indeed regrettable that as scientists work toward the unravelling of the mysteries of food and the relation and interrelationship of nutritients one to the other, that books of this type set out quite deliberately to assume what is not known and to misquote information provided by reliable workers through the avenues of professional journals.—*Adelia M. Beeuwkes, Associate Professor of Public Health Nutrition, School of Public Health, University of Michigan, Ann Arbor.*

RECENT BOOKS RECEIVED

Aspects of Health, Sanitation, and Nutritional Status in a Siamese Rice Village. Studies in Bang Chan, 1952-54. By Hazel M. Hauck. Cornell Thailand Project, Interim Reports Series, Number 2. Data Paper: Number 22. Ithaca, N. Y.: South East Asia Program, Department of Far Eastern Studies, Cornell University, 1956. Paper. Pp. 79. Price $1.

Low-Fat Cookery. By Evelyn S. Stead and Gloria K. Warren. New York: The Blakiston Div., McGraw-Hill Book Company, Inc., 1956. Cloth. Pp. 184. Price $3.95.



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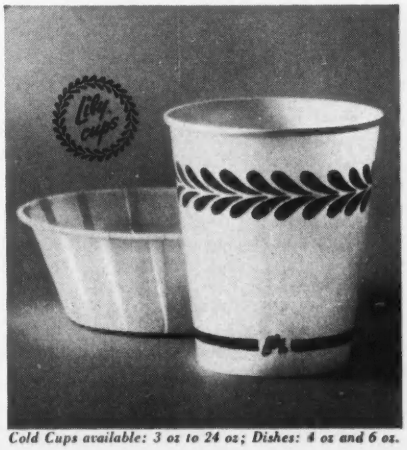

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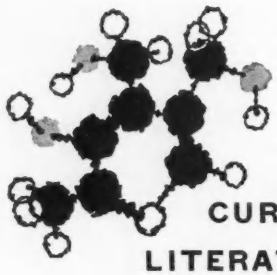

CURRENT LITERATURE

Contributed by Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Elizabeth H. Tuft, Chicago Wesley Memorial Hospital, Chicago; and the Journal staff

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 4, November–December, 1956

* Vitamin E deficiency in man: biochemical evidence in a patient with xanthomatous biliary cirrhosis. C. W. Woodruff.—p. 597.

Hypervitaminosis A. Experimental induction in the human subject. R. W. Hillman.—p. 603.

* Absorption of iron from the gastrointestinal tract. E. D. Henley, W. N. Christenson, W. J. Grace, and H. G. Wolff.—p. 609.

* Pyruvate metabolism in obesity. A. T. Miller Jr., and B. M. Thomas.—p. 619.

* The care and nutrition of a patient in prolonged coma. R. L. Hopp, W. J. A. Ford, and S. J. O'Connor.—p. 625.

* Some recent developments in oral feedings for optimal nutrition in burns. C. P. Artz, H. S. Soroff, E. Pearson, and R. P. Hummel.—p. 642.

* The diagnosis of malnutrition in well-nourished communities. A. M. Thomson.—p. 647.

* The relationship between potassium utilization and nitrogen balance. L. E. Frazier, R. H. Hughes, and P. R. Cannon.—p. 655.

* Optimal nutrition correlated with nitrogen retention. J. B. Allison.—p. 662.

* Postabsorptive undulations and oscillations in blood glucose. G. E. Anderson, R. W. Hillman I. F. A. Van Elk, and A. J. Perfetto.—p. 673.

Avitaminosis E in Man. The patient was first admitted to the hospital with xanthomatous biliary cirrhosis and was placed on a low-fat diet which continued for three years, steatorrhea being present during this time. When tested five years later, there was an absence of tocopherols in the blood serum which was associated with creatinuria and pentosuria. For three months, 100 mg. alpha-tocopherol were administered daily, resulting in the disappearance of the creatinuria and pentosuria. However, no change in the serum level of tocopherol was noted until therapy had continued for another three months. For the next nine months, the alpha-tocopherol was replaced with a placebo, and the above biochemical changes reappeared; hydrogen peroxide hemolysis of red cells was also increased. It is believed that these biochemical changes represent avitaminosis E in man.

Iron Absorption from the GI Tract. Inaccuracies were revealed in the use of serum iron values in measuring the rate of iron absorption. The rate of removal of iron from the blood as well as the rate of absorption is needed to determine serum levels. An oral iron tolerance test was performed on healthy controls and on patients with a variety of diseases. Both ferrous stable and ferric radioactive iron were used. Tests were run on iron recoveries in serum, hemoglobin, and feces. The recovery of serum iron was considerably less than the later recovery from hemoglobin or the estimation of absorption by stool analysis. Because of this, it is concluded that there is little value in carrying out the serum procedure, except to evaluate the rapidity of iron absorption. For the patient, total absorption by stool analysis provided the best method since a diseased state may impair hemoglobin synthesis as well as influence the rate of iron removal to storage tissues.

Pyruvate Metabolism in Obesity. A theory has been advocated that in obese people there is a defect in carbohydrate metabolism resulting in the accumulation of pyruvate. This depresses oxidation of fat and increases lipogenesis from carbohydrate. However, this theory has not been tested directly in human obesity. To obtain more information, experiments were performed on a group of normal and obese subjects. Pyruvate levels were measured during basal conditions, after the administration of glucose, and after moderate exercise. Results in the first two experiments were the same for both groups. In the third experiment, pyruvate levels were elevated more in the obese group which probably indicated less adequate blood flow through the working muscles rather than a metabolic abnormality. There is still no direct evidence to support this theory.

Care and Nutrition in Prolonged Coma. A few points presented on care of a comatose patient were: a tracheotomy to prevent anoxia, frequent skin massage and passive exercise of joints, correct positioning of patient in bed, insertion of a catheter, along with a low-phosphorus diet to prevent calculi formation, and frequent rectal examinations. Nutrients may be administered by intravenous and nasogastric tube feeding. During the first 24 to 72 hr. adequate fluid, blood, and plasma should be given intravenously. This should be followed by a tube feeding. Liquefied whole food was preferred over a formula since there were less side effects. A case study of a patient who has now been in coma for seventeen months and is still in good physical condition is also presented.

Oral Feedings for Optimal Nutrition in Burns. Help in attaining optimal nutrition in the burned patient can be achieved by oral supplemental protein feedings. This supplement should provide protein without a large number of calories. During the past four years Provimalt, a high-protein supplement powder, has been found to be satisfactory. It is mixed with whole milk, flavored with chocolate sirup, and served cold. Besides being palatable, the patients rarely tire of it.

Malnutrition in Well-Nourished Communities. During the past few years severe deficiency diseases have disappeared. However, this does not mean that the highest level of health has beeen attained. There is no such thing as "the ideal diet," but we must take a series of optima depending on the population, environment, and the particular aspects of health. Dietary standards obtained in this way are practical because they relate to known levels of health. Individuals vary in their response to diet as well as to nutrients given therapeutically. We need to understand more about the nature of malnutrition since there is such variability among individuals. What degree of this variability is physiologic rather than pathologic is still to be determined. It seems that considerable physiologic variability will remain, even if an optimal diet is reached. Because of this it may be best to study the variation of normal reactions to get a clearer understanding of physiologic potential and its relation to diet.

Relationship Between Potassium Utilization and Nitrogen Balance. Nitrogen and potassium usually follow parallel courses of excretion so it might be true that a similar relationship exists during anabolism. If so, then a positive nitrogen balance would be necessary for potassium retention, especially when administered therapeutically. Experiments were conducted on normal and protein-depleted albino rats. When the animals were fed rations devoid of nitrogen and potassium, they remained in negative nitrogen and potassium balance plus showing losses in weight. When only potassium chloride was added to the ration, the results were the same. However, with both potassium and an amino acid mixture added to the diet, the rats gained weight as well as establishing positive potassium and nitrogen balances. It is concluded that an anabolic state must be established before potassium utilization by cells can be accomplished.

Optimal Nutrition and Nitrogen Retention. The body's labile protein stores are continually being broken down, leading to the oxidation of amino acids and the excretion of urea. As these stores are depleted, catabolic activity decreases so as to conserve tissue protein. If, before further depletion occurs (increases in tissue destruction), a constant protein diet is fed, the animal will gradually return to nitrogen equilibrium. The over-all nitrogen balance of an animal is the sum of gains and losses from the various tissues of the body, but this does not indicate shifts of protein nitrogen from one tissue to another. In the tumor-bearing animal, some tissues may be in positive balance while others may be in negative balance. In experiments on rats and dogs, it was noted that sulphur amino acids promoted the anabolic and reduced the catabolic processes. The depletion of liver proteins resulted in decreased activity of certain enzyme systems which affected the liver's ability to detoxify. A diet high in protein and supplemented with vitamins led to the maximum development of the enzyme systems of the liver. In other experiments on rats it was found that TEPA

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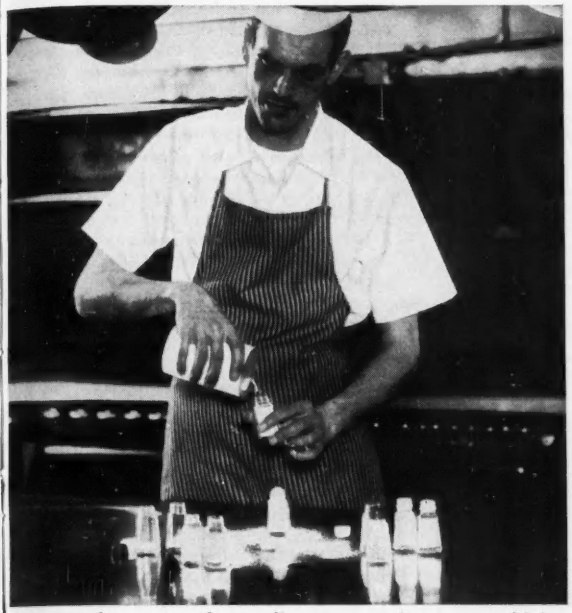

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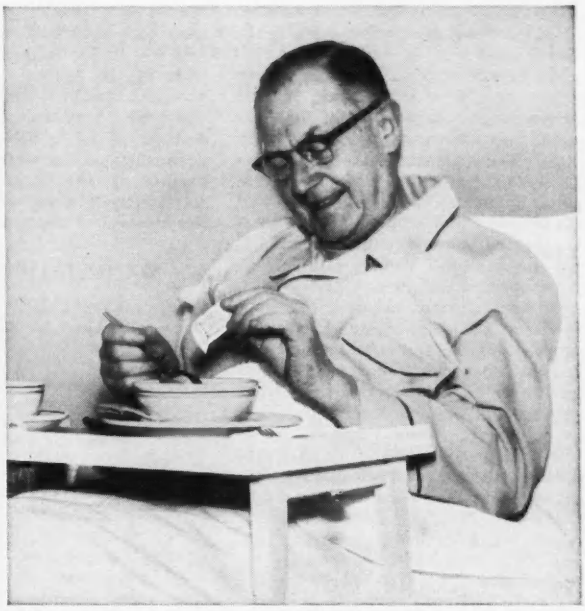

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(triethylenephosphoramide) would depress the growth of both body tissues and tumor. From the results of the above experiments, it was found that an adequate protein diet containing vitamin and methionine supplements and TEPA protects body tissues while depleting the effect of the tumor.

Post-Absorptive Blood Glucose. During the post-absorptive period, the blood glucose level is constantly changing. In experiments on dogs and human beings, there were found wide arterial and venous glucose oscillations throughout the post-absorptive period. A sharp venous glucose descent in each oscillation represents the transfer of glucose across cellular barriers. This descent is followed by a sharp rebound meaning glucose is returning to venous channels from behind the barriers. Venous undulations are never identical in any two points. Arterial undulations arise in the liver and are uniform throughout the arterial system. During post-absorption, the mean glucose level of venous fluctuations tends to equal the arterial fluctations with a gradual descent of the mean level over hours of post-absorption. This probably represents the net captivity of glucose by the tissues, its transfer across barriers, and its venous resurgence. In this way, the body maintains blood glucose homeostatically constant between its production by the liver and its transfer across cellular barriers.

THE AMERICAN JOURNAL OF MEDICINE

Vol. 21, November, 1956

* A peculiar type of cardiopulmonary failure associated with obesity. D. Carroll.—p. 819.

Cardiopulmonary Failure and Obesity. Extreme obesity occasionally is accompanied by right sided heart failure, hypercapnia, and secondary polycythemia without significant structural abnormality of the heart and lungs. Two such cases are reported here. An explanation of mechanical handicap of extreme obesity in respiration is offered.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 187, October, 1956

* Carbohydrate metabolism of hypophysectomized dogs as studied with radioactive glucose. R. Steele, J. S. Wall, R. C. deBodo, and N. Altszuler. —p. 25.

Carbohydrate Metabolism of Hypophysectomized Dogs. Minute amounts of uniformly labeled C^{14} glucose were administered intravenously to unanesthetized normal and hypophysectomized dogs in the post-absorptive state, as an initial priming injection followed by a constant infusion. From the observed specific activity of the plasma glucose during the 60- to 180-min. period of the constant infusion, the following parameters of carbohydrate metabolism were determined: the size of the glucose pool, the glucose space, and the rate of turnover of the glucose pool. The rate of total carbon dioxide production per square meter of body surface area was found to be less in the hypophysectomized dog than in the normal one. The glucose space expressed as percentage of body weight was found to be similar in the two types of animals. The rate of turnover of the glucose pool in the hypophysectomized dogs, presented as grams of glucose per square meter of body surface area per hour, was less in the hypophysectomized dog than in the normal. The low rate of glucose uptake by the tissues which was observed to prevail in the hypophysectomized dog is believed to reflect an adjustment in the secretion of insulin to conform to the limited availability of endogenous glucose which results from the removal of the pituitary gland.

ANNALS OF INTERNAL MEDICINE

Vol. 45, October, 1956

* Spaced fat feeding: A regime of management for familial hyperlipemia. C. F. Wilkinson, Jr.—p. 674.

Hyperlipemia associated with diabetes mellitus and pancreatitis: A case report and autopsy. C. R. Tourtellotte and R. D. Tyler.—p. 691.

Fructorsuria: Report of a case. A. R. Lenzner.—p. 702.

Spaced Fat Feeding for Familial Hyperlipemia. The basic metabolic defect in familial hyperlipemia is a retarded removal of ingested fat from the blood stream after normal absorption. Over a period of years the fat gradually accumulates in the blood stream because the postprandial elevation of fat never returns to the fasting level before another meal is ingested. The hyperlipemia may be reduced and the blood lipids maintained at a normal level by a regimen consisting of a fat-free breakfast and luncheon. No restriction of fat is needed for the evening meal. The elevated cholesterol is also controlled.

ARCHIVES OF INTERNAL MEDICINE

Vol. 98, September, 1956

Evaluation of adrenal cortical function by stimulation with corticotropin (ACTH). N. H. Engbring, R. B. Truitt, and W. W. Engstrom.—p. 257.

Adrenal cortical activity in gastric carcinoma. I. Studies of plasma 17-hydroxycorticosteroid levels. J. Rosenbojm, L. J. Krakauer, and S. J. Gray.—p. 266.

A bibliography of internal medicine: Rheumatic fever. A. L. Bloomfield.—p. 288.

Management of rheumatoid arthritis. H. Waine.—p. 332.

Vol. 98, October, 1956

* Fatal acute myocardial infarction in diabetic patients. W. A. Thomas, K. T. Lee, and E. R. Rabin.—p. 489.

Vol. 98, November, 1956

* Pathogenesis and treatment of macrocytic anemia. P. A. McIntyre, M. V. Sachs, J. R. Krevans, and C. L. Conley.—p. 541.

The mechanism and treatment of iron-deficiency anemia. A. R. Stevens, Jr.—p. 550.

Abnormal forms of hemoglobin from a genetic point of view.—p. 555.

Mechanism of destruction of red cells in certain hemolytic conditions.—p. 574.

Fatal Myocardial Infarction in Diabetic Patients. The age and sex distribution and various clinical and anatomical features of 94 persons with diabetes who died with acute myocardial infarction are compared with the corresponding features of 406 non-diabetic persons who died as a result of this condition. The average ages at death of diabetic persons was similar in both sex groups to the corresponding ages in the non-diabetic group. Also, this series indicates that acute myocardial infarction was significantly commoner among women with diabetes than among diabetic men, whereas, the incidence was significantly greater among non-diabetic men than among non-diabetic women.

Pathogenesis and Treatment of Macrocytic Anemia. Clinical vitamin B_{12} deficiency states are almost always the result of impaired absorption of the vitamin from the gastro-intestinal tract. The use of vitamin B_{12} labelled with radioactive cobalt demonstrates that normal persons, as well as those with pernicious anemia, may have limited and retarded absorption of this vitamin. If the defective absorption is due to a deficiency of the intrinsic factor, the condition may be overcome by the simultaneous administration of the vitamin and the intrinsic factor. Absorption defects are not corrected by intrinsic factor if caused by functional or anatomical derangements of the small intestine, as in sprue, enteritis, pancreatic insufficiency, and intestinal resection. Therapy with this vitamin is most effective when administered parenterally.

BRITISH MEDICAL JOURNAL

No. 4998, October 20, 1956

* Treatment of Addison's disease. R. N. Beck and D. A. D. Montgomery.—p. 921.

Treatment of Addison's Disease. An account is given of a clinical trial in which four patients with Addison's disease were studied over a period of eighteen to twenty-seven months. Initial treatment with a combination of cortisone, deoxycortone trimethylacetate microsuspension, and salt for nine to twenty-one months was followed by maintenance on cortisone alone for six to ten months. The effects of both forms of treatment on the clinical and biochemical aspects are detailed. It is concluded that the majority of patients with Addison's disease can be maintained in good health on cortisone alone, without additional D. C. A. (deoxycortone acetate) or salt.

FOOD RESEARCH

Vol. 21, September–October, 1956

* Chemical changes in fish actomyosin during freezing and storage. H. L. Seagran.—p. 505.

Vol. 21, September–October, 1956

* Penetration and growth of *Salmonella* in shell eggs. J. L. Stokes, W. W. Osborne, and H. G. Bayne.—p. 510.

* Vitamin B_{12} potency of Cheddar, Swiss, and cottage cheese. A. M. Hartman, L. P. Dryden, and R. E. Hargrove.—p. 540.

* Some chemical and organoleptic changes in gamma irradiated meats. H. S. Groninger, A. L. Tappel, and F. W. Knapp.—p. 555.

* Essential amino acid composition of pulses and rice. K. P. Chatterjee, A. Ray, and S. Banerjee. —p. 569.

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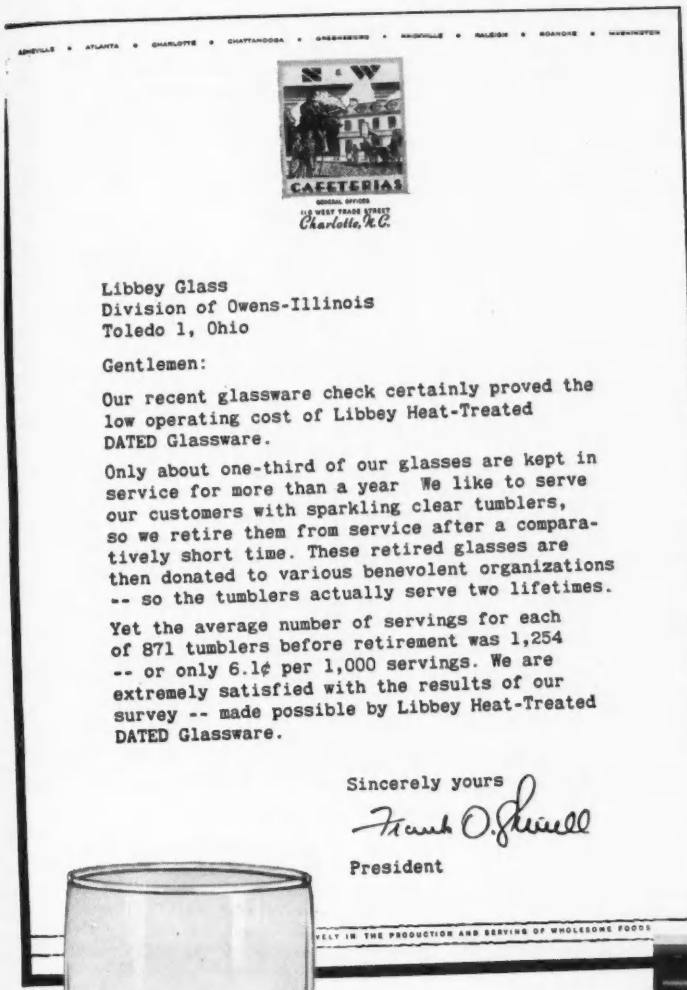

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* Bacteriological flora in frozen and chilled orange juice. M. Purko, R. V. Hussong, and C. W. Kaufman.—p. 583.

Changes in Fish During Freezing and Storage. Preference for fresh over frozen fish results from loss of tenderness and flavor when frozen and stored. Off-flavors and -odors are attributed to denaturization of the protein fraction, actomyosin. Studies were carried out on the sulfahydryl content (chemical activity), viscosity, and solubility properties of actomyosin isolated from fresh and frozen yellow-striped rockfish. Tests for reactive -SH groups showed only a slight increase during the freezing process, therefore not indicating a significant change in chemical activity. An immediate decrease in intrinsic viscosity was noted on freezing, although no significant early change in solubility occurred. Solubility did decline continuously when the storage period exceeded one month. It was concluded that continued frozen storage is responsible for a change, not yet known, that causes denaturation of actomyosin.

Salmonella Growth in Shell Eggs. Shell eggs were contaminated with five strains of Salmonella by immersing warm eggs in cold, aqueous bacterial suspensions. When the contaminated eggs were incubated at 29°C. for three to four weeks, all the strains penetrated the shell membranes and multiplied within the eggs to populations as high as one billion cells per millimeter of egg meat. Penetration and growth occurred just as readily with the non-motile, as with motile, strains. In sharp contrast to the occurrence of internal infection within a month in eggs contaminated and stored at 29°C., there was no sign of infection in identically treated eggs stored at 1°C. for as long as six months. These data suggest that shell eggs to be stored for several weeks or longer should be kept below 10°C. to prevent possible infection from Salmonella.

Vitamin B_{12} Potency in Cheese. The vitamin B_{12} potency of various cheeses was determined by microbiologic and rat assay. Agreement of results obtained by the two methods was best with cottage cheese. No correlation was observed between mildness and sharpness of Cheddar cheese and vitamin B_{12} potency or between curd size in cottage cheese and potency. The vitamin B_{12} content of one lot of natural Cheddar cheese did not change during curing. On a dry matter basis, natural Cheddar, Process Swiss, and cottage cheese had about the same potency (33, 32, and 38 mcg. per kilogram, respectively) as determined by rat assay. Process Cheddar was less potent (19 mcg. per kilogram) whereas natural Swiss was more potent (58 mcg. per kilogram).

Changes in Irradiated Meats. Preservation of meats by ionizing radiation has value as a commercial method. The undesirable chemical and organoleptic changes which occur during irradiation and affect nutritive value and consumer acceptance are reported here. For all meats evaluated organoleptically, the flavor of irradiated meat was significantly different from the unirradiated. Thiamine in all meats studied was labile to radiation. Radiation should be carried out in an inert atmosphere or vacuum to reduce formation of nutritionally undesirable lipid peroxides and carbonyls. Hematin pigments of irradiated fresh meat were bright due to increased oxymyoglobin; however, there was loss of the nitrosohemochrome in cured ham. The carotenoid pigment of salmon was extensively destroyed by irradiation. At the sterilizing dose, the succinoxidase system was still active in beef, pork, and tuna.

Amino Acid Composition of Pulses and Rice. The essential amino acids, on which protein efficiency values depend, in seven varieties of pulses and rice were determined by the microbiologic assay procedure. Leucine, isoleucine, valine, histidine, lysine, and tryptophan are most highly concentrated in the protein of *Phaseolus radiatus*. Phenylalanine, methionine, arginine, and threonine are highly concentrated respectively in *Cajunus indicus*, *Phaseolus mungo*, *Pisum sativum*, and *Lathyrus sativus*. Rice is rich in tryptophan, methionine, phenylalanine, and histidine

Flora in Orange Juice. One hundred fifty bacteria isolated by use of Violet Red Bile agar were studied to learn more about the prevalence of certain types of coliforms and related organisms in frozen and chilled orange juice. Sixty-five per cent of the isolates were of the Aerobacter type and 35 per cent were intermediate. No cultures of the *Escherichia coli* were isolated.

FOOD TECHNOLOGY

Vol. 10, November, 1956

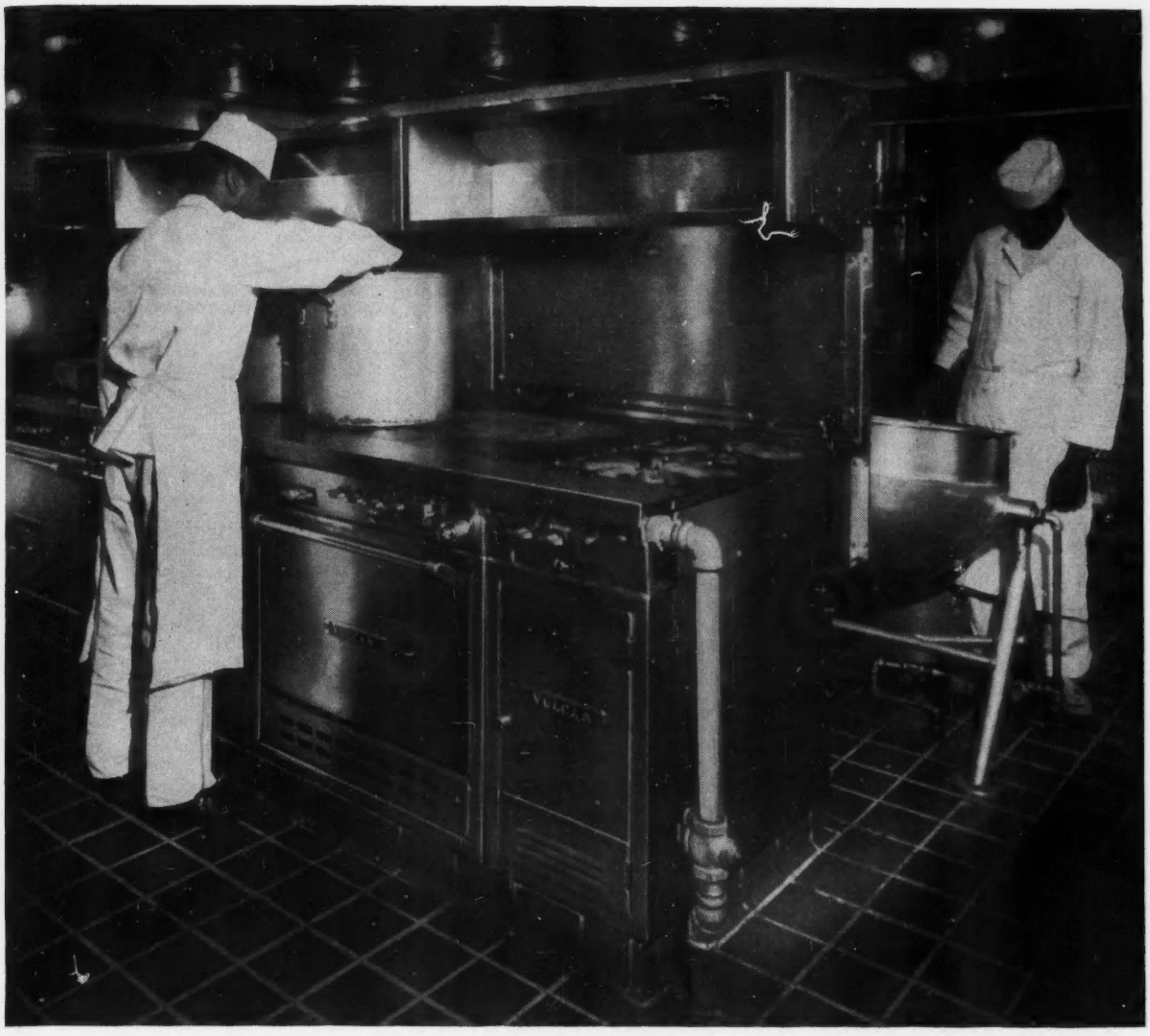
* Evaluation of microbiological standards for foods. G. M. Dack.—p. 507.
* Influence of radiation preservation of foods on military feeding. R. Ryer, III.—p. 516.
* Nutritional aspects of Air Force feeding. B. Finkelstein.—p. 520.
* New foods at altitude. A. A. Taylor.—p. 526.
* Treatment of wheat with ionizing radiations. III. The effect on breadmaking and related properties. M. Milner and Y. Yen.—p. 528.
* The effect of intermittent radiations and concomitant increase in temperature during radiation on the acceptability of ground beef. R. F. Cain, E. C. Bubl, and A. W. Anderson.—p. 537.
* Growth characteristics of spoilage organisms in orange juice and concentrate. J. M. Berry, L. D. Witter, and J. F. Folinazzo.—p. 553.
* Use of antibiotics in prolonging storage life of dressed chicken. J. C. Ayres, H. W. Walker, M. J. Fanelli, A. W. King, and F. Thomas.—p. 563.

Microbiologic Standards. Microbiologic standards are necessary in the production of high quality foodstuffs. Such standards indicate the degree of cleanliness of pertinent factory surfaces and of the hygienic efficacy of practice. However, interpretation of microbiologic data can be erroneous when applying knowledge obtained with one class of foods to another. At present, microbiologic standards are restricted to fluid milk, ice cream, egg products, tomato products, and shell fish. A factor in the total problem is the origin of microorganisms in the product. Soil is a potential source of contamination of food. It contains its own saphrophytes plus microorganisms of animals. Handling of foods and processing methods add to possibilities of contamination. A distinction and proper evaluation should also be made between spoilage microorganisms causing incipient or frank changes in organoleptic characteristics and food poisoning bacteria when viewing and weighing hygienic attainment. Microbiologic standards for frozen foods would be difficult to interpret since, while the counts during freezing decrease, the rate of decrease varies with different organisms and products. Where scientific knowledge is available and in foods where standards are feasible and practicable, microbiologic standards should be established and used.

Radiation Preservation of Foods. Many problems still exist within the military systems for supplying foodstuffs to troops, particularly in combat areas. Radiation by gamma or beta rays is suggested as a method which provides potential answers to most difficulties. Radiation processing of food can destroy all contaminating entities—a dosage at 3 million rep affords sterilization—and no radioactivity is induced in food at the energy levels required for sterilization. This method reduces costs, both in food handling and maintenance support, and decreases requirements for refrigeration facilities. Food losses are cut, and the soldier receives food that is not only wholesome and nutritious, but attractive as well. Health and morale are improved.

Air Force Feeding. The responsibility for satisfying nutritional requirements rests on many different factors and agencies within the U.S. Air Force. The Food Service Branch, Air Force Services Division of Air Material Command technically directs the U.S. Air Force Food Service Program, world wide. Two of its most pertinent objectives from a nutritional standard are: to interpret nutritional requirements for ground personnel as established by the Air Surgeon and to translate physiologic characteristics of aircrew members into such nutritional requirements as will sustain optimum performance during flight. These objectives are based on the knowledge that physical, emotional, environmental, and social factors, in addition to diet, affect nutrition. The Aero Medical Laboratory, Wright Development Center, endeavors, through its Nutrition Section, to accumulate a reservoir of biologic facts regarding the interrelationship of nutrition and the human organism when subjected to stresses of existing operations and critical emergencies. Nutrition courses are provided through the Air Force Defense Command for the wives of fighter pilots. This is just one insight into a food service program which has but one objective—a smoothly operated feeding system which maintains the most effective fighting force in the world.

In-Flight Feeding. The U.S. Air Force has benefited through the development in recent years of "ready to eat" and "brown and serve" types of food. There are four general criteria to be considered in foods and meals for



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use in-flight. The first is utility. Acceptability must be high enough to insure consumption in adequate quantities. Stability must be great enough to avoid the possibility of spoilage. Nutritionally, the meals should be balanced and must possess no undesirable after-effects. Research has been designed primarily at increasing acceptability. The precooked frozen meal is the most recent feeding plan to gain widespread Air Force use. The basic research program being conducted is aimed at providing practical biologic information to be used in selecting, developing, and using new foods at altitude. This will better enable the Air Force to provide foods that will meet the stringent limitations imposed on man in modern, high speed, high altitude flight.

Gamma Radiation—Effect on Wheat. The present study is concerned with treatment of normal dry wheat with gamma radiation at levels up to 1 million rep. The dosage range employed covered that required for the elimination of storage fungi as well as insects. Baking techniques and quality evaluation were those used for commercial pan bread. The most significant factor elucidated by these studies concerned the drastic decreases in starch gelatinization viscosity (amylograph value). Changes in dough-mixing curves included a tendency toward shorter dough development time and toward accelerated breakdown of doughs with over-mixing. Bread quality from all treatment levels was surprisingly good. An apparent improvement of all loaf properties over those of the control occurred at the 125,000-rep treatment level. Wheats of lower protein content might be more sensitive to the damaging effects of irradiation, particularly with dosages beyond 250,000 rep.

Radiation—Effect on Ground Beef. The use of ionizing radiations as a new method of food preservation has been under intensive study. The objective is to develop a method of radiating foodstuffs which will provide an acceptable and adequately preserved food for military feeding. This investigation has centered on the effects of these methods of intermittent gamma irradiation on the bacterial population, peroxide formation, thiobarbituric acid color formation, fluorescence value, and flavor of ground beef. The beef used in these experiments was obtained freshly ground and consisted of approximately 85 per cent lean and 15 per cent fat. The meat was filled into cans, sealed under vacuum, frozen, and exposed to radiation. Results indicated that in ground beef after 1, 2, 4, and 8 exposures to gamma radiations: significantly less irradiation flavor developed in the eight-exposure treatment; increase in number of exposures resulted in a significant decrease in number of radio-resistant micrococcus surviving; and a significant decrease in peroxides and TBA color occurred with increasing exposures. When ground beef was exposed to increasing dosages of gamma radiations with concomitant increase in temperature, the results indicated that: irradiation flavor depended on dose and was independent of temperature; bacterial survival depended on both irradiation and temperature; peroxides and TBA color significantly decreased with increasing temperatures at the time of irradiation.

Spoilage Organisms in Orange Juice and Concentrates. Outbreaks of spoilage in orange concentrate, manifested by "buttermilk" off-flavors and odors, may be caused by the growth of *Lactobacillus* and *Leuconostoc* bacteria. Growth curve characteristics in orange juice and concentrate were determined for three different types of organisms previously implicated in product spoilage: *Leuconostoc sp.*, *Lactobacillus plantarum* var. *mobilis*, and *Zygosaccaharomyces vini*. These organisms were grown at conditions covering virtually all those encountered in commerical production of orange concentrate which are hazardous from the standpoint of spoilage. From the forty-five separate growth curves determined in these studies, the following general observations were made. The lag phase of microorganism growth was independent of the growth conditions and was a function of only the nature of the inoculating culture. A decrease in growth temperature from an optimum of 86°F. resulted in a decrease in the growth rate of the three organisms tested. Both the *Leuconostoc* and the *Lactobacillus* strains tested did not grow at 40°F. regardless of the degree Brix and did not grow at 42° Brix regardless of the temperature. At 40° F., the yeast grew slowly in all concentrations through 42° Brix. An increase in the degree Brix from 12° and 20° resulted in a decrease in the growth rate of the three organisms tested. *Leuconostoc sp.*, under the most favorable conditions of Brix and temperature, was capable of attaining a concentration of approximately a billion organisms per millimeter in 24 hr. from an initial concentration of only 10,000 organisms per millimeter.

Antibiotics to Prolong Storage. This study was undertaken to determine the extent to which antibiotic treatment would delay the growth of microorganisms indigenous to dressed poultry. It adds to the observations already made by other such studies. The effect of dipping eviscerated poultry in antibiotic and antifungal solutions for a period of 2 hr. at 1.7° C. was tested. Various antibiotics were used. At minimal concentrations (3 or 10 p.p.m.), chlortetracycline was the most effective antibiotic for prolonging the storage life of the birds stored at 4.4°C. Oxytetracycline was second in order of effectiveness and, at 30 p.p.m., these two tetracyclines were comparable. The other antibiotics and antifungals demonstrated little or no improvement over the controls for storage quality of the birds. The two antifungals, rimocidin and A-5288, appeared to be the most effective in inhibiting yeasts. However, insofar as the total flora were concerned, the antifungals had only limited preservative effect. There is the good possibility that a combination of antibiotics can be selected in such manner that their complementary action will markedly retard development of bacteria and fungi.

INDUSTRIAL MEDICINE AND SURGERY

Vol. 25, November, 1956

* Citrus bioflavonoids in the treatment of the common cold. W. L. Macon, Jr.—p. 525.

Citrus Bioflavonoids and the Common Cold. Clinical tests indicate that a combination of citrus bioflavonoids with ascorbic acid and less than an average dose of acetylsalicylic acid exerts a curative action on the common cold. Because of the subtherapeutic quality of acetylsalicylic acid present in the bioflavonoid combination, the effect cannot be attributed to the analgesic alone. In various groups as high as 74.2 per cent of test subjects reported complete or partial cessation of the usual manifestation of nasal irritation on second day after medication. No toxic or allergenic reactions were observed.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 162, November 10, 1956

* Effects of sulfonylurea drugs in hospitalized diabetic patients. H. L. Wildberger and H. T. Ricketts.—p. 1045.

Effects of Sulfonylurea Drugs on Diabetes. In experiments on dogs and rabbits, it was found that a drug of the sulfonamide group would depress blood sugar levels. Thinking that the sulfonylurea compounds might aid in the treatment of diabetes mellitus, studies were conducted on human beings with favorable results. However, since rigid experimental conditions were not maintained, these results could not be considered conclusive. This investigation was then undertaken to determine the effect of Carbutamide and Tolbutamide on sugar levels in blood and urine in diabetic patients. First, when normal subjects were tested, there resulted a maximal depression in the blood sugar level. When the diabetic patients were tested, the results showed that sulfonylurea compounds were only effective for patients with mild diabetes of not more than a few years duration. The side effects were limited to leukopenia which occurred in two of the seven diabetic patients. Until more is known about these drugs, their distribution should be delayed.

THE JOURNAL OF THE CANADIAN DIETETIC ASSOCIATION

Vol. 18, November, 1956

* The rationale of low sodium diets. J. K. Wilson.—p. 11.
* Cholesterol. E. H. MacMillan.—p. 20.

Low-Sodium Diets. Studies in recent years have demonstrated the importance of sodium restriction in conditions such as congestive heart failure, hypertension, kidney disease, cirrhosis of the liver with ascites, and toxemia of pregnancy. Sodium is associated with water since 120 to 130 cc. water is retained or excreted with 1 gm. of this cation. Edema then occurs when intake exceeds output. Often a drastic restriction is necessary to relieve edematous

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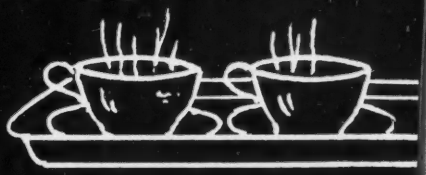

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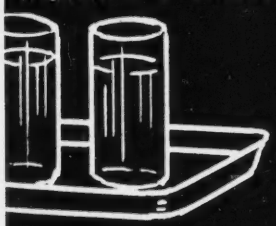

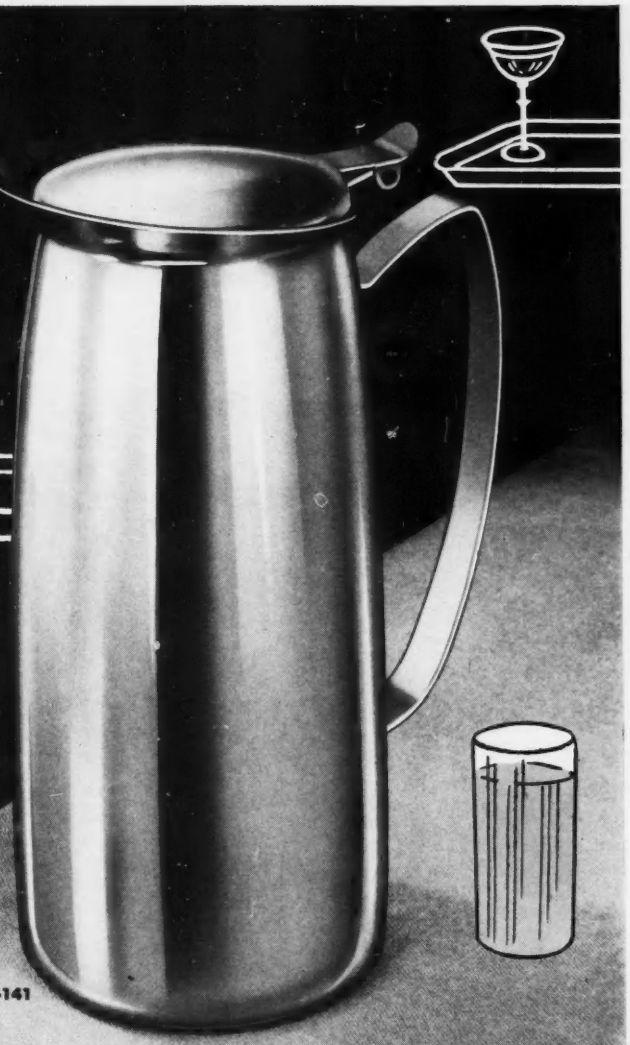

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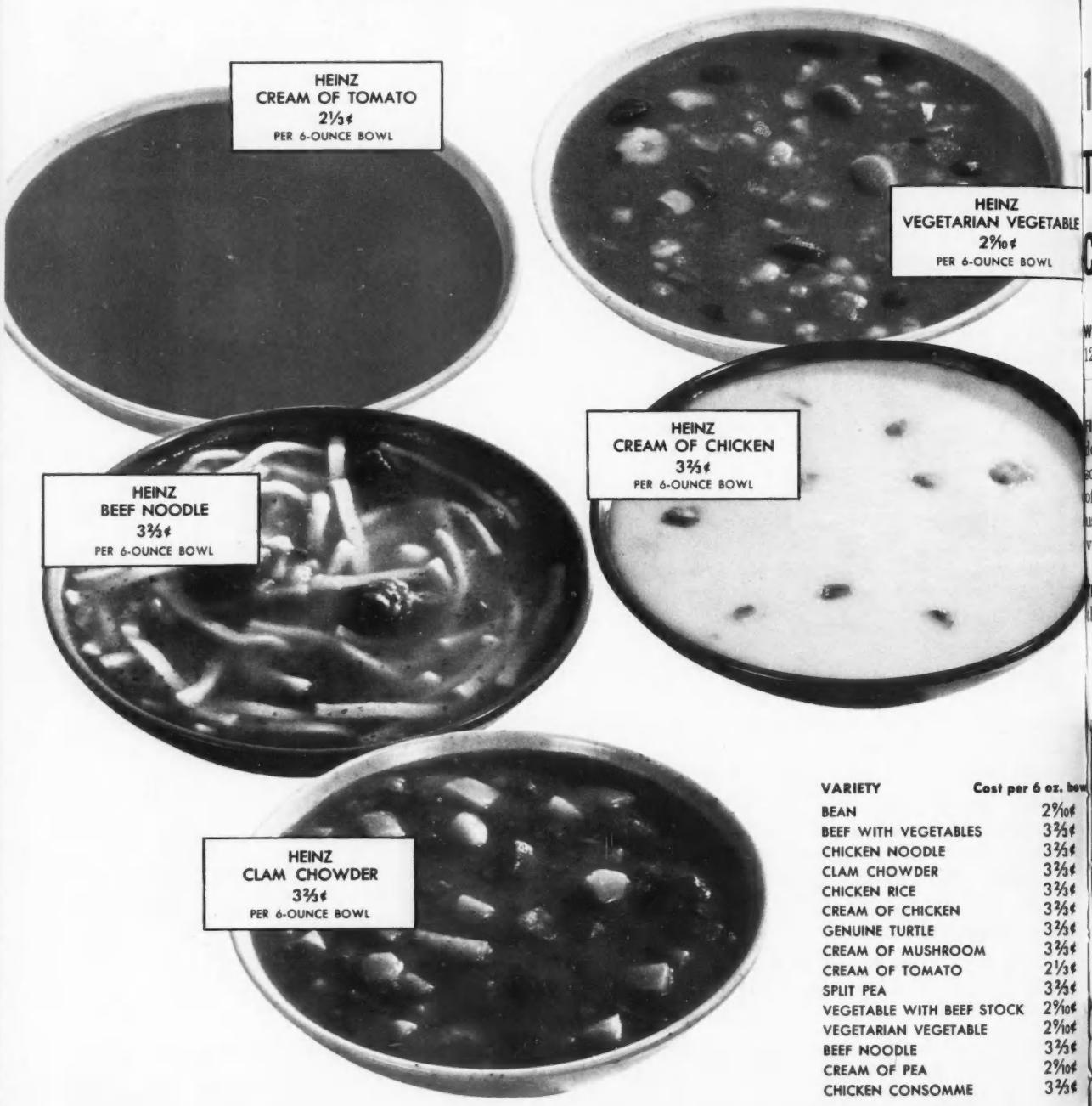

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conditions, and it is up to the dietitian to present a palatable and nutritionally adequate diet.

Cholesterol. Blood cholesterol has been found to be significant in the development of atherosclerosis which leads to heart disease. Until recently it was thought that dietary cholesterol influenced the cholesterol blood level. In 1950, studies showed that the fat rather than the cholesterol content of diet influenced blood cholesterol. Caloric intake also proved important. When caloric intake exceeded caloric expenditure, there was an increase in the blood cholesterol. A diet that contains not more than 20 to 25 per cent fat (if there is no caloric excess) will help guard against high blood cholesterol.

JOURNAL OF HOME ECONOMICS

Vol. 48, November, 1956

* The forward look in nutrition education. E. H. Semrow.—p. 685.
* Leakage of baked soft-meringue topping. J. N. Gillis and N. K. Fitch.—p. 703.

Forward in Nutrition Education. Questionnaires were sent out to leaders in nutrition, and attention was focused on general education, the Basic 7, nutrition in elementary and secondary education, and on teacher training. The returned questionnaires revealed that: general education lacks uniformity, sequence, and organization; proposed plans for reduction of the number of food groups of the Basic 7 were not acceptable, although minor changes might be considered; nutrition should be taught at the elementary level; nutrition should be interwoven with subjects, such as social sciences, bacteriology and biology at the secondary level; and teachers should be required to have more of a background in nutrition before obtaining their certificates. The survey confirmed the belief that nutrition education still has far to go before people will benefit from its information.

Leakage of Meringue Topping. To study meringue leakage, tests were conducted on sugar proportions, beating schedules, and baking temperatures and times. The various sugar proportions (2, 2½, and 3 Tbsp. per egg white) were added at different times during the beating of the egg whites. The two baking temperatures were 325°F. for 18 min. and 400°F. for 7 min. The most stable meringues were those made with 2 Tbsp. sugar per egg white added after beating the egg whites 20 to 40 seconds and then baking at 325°F. for 18 min. When cutting quality as well as leakage was considered, the best meringues were those made with 2½ Tbsp. sugar added after 20 seconds of beating and baked at 325°F. for 18 min.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 27, October 1, 1956

* Nutritive and hygienic qualities of ice cream. K. K. Govil, D. P. Bhatnager, and K. C. Pant.—p. 245.

Hygienic Qualities of Ice Cream. Ice cream in India has become popular only in the last few years. A study was undertaken to determine the chemical and hygienic quality of the low priced and high priced ice cream now being sold. The difference between the two was found to be the quantity and quality of the raw materials and the equipment used. Constituents of each were analyzed by chemical and bacteriologic tests. Both ice creams met chemical standards of the U. P. (India) Pure Food Act, and the high priced ice cream could compete with the composition of the average American and British ice cream. However, there are no bacteriologic standards for milk in India, and bacterial counts were extremely high in both ice creams. Adequate publicity should be given these results so as to bring to light the importance of pasteurization, sterilization, and the proper handling of ice cream.

THE JOURNAL OF NUTRITION

Vol. 60, November, 1956

* Quantitative studies on the urinary excretion of tryptophan metabolites by humans ingesting a constant diet. J. M. Price, R. R. Brown, and M. E. Ellis.—p. 323.
* Nutritional intake of children. IV. Vitamins A and D and ascorbic acid. V. A. Beall.—p. 335.
* Metabolic patterns of a group of overweight, underweight, and average weight women. B. E. Hawthorne, W. D. Brewer, and M. A. Ohlson.—p. 391.
* Prevention of inanition in vitamin B_6-deprived rats by insulin treatment. G. H. Beaton, A. M. Haufschild, and E. W. McHenry.—p. 455.

Tryptophan Metabolites in Urine. The urinary excretion of seven metabolites of tryptophan was determined on four men ingesting a constant diet containing an estimated 15 mg. niacin and 900 mg. tryptophan. After six days on the constant diet, 2.0 gm. L-tryptophane was given as a single oral dose and the excretion of the metabolites was determined for six more days. On the constant diet, about 16 mg. pyridone were excreted per day. The other metabolites of tryptophan accounted for 2.5 per cent of the amino acid. Following ingestion of a single 2.0-gm. supplement of tryptophan, pyridone excretion increased to an extent which would account for 0.8 per cent of the dose. The increase in the excretion of the other metabolites accounted for 1.3 per cent of the supplemental tryptophan. Hynurenic acid, *o*-aminohippuric acid, and kynurenine were important urinary metabolites of the oral supplement. Xanthurenic acid, acetylkynurenine, and anthranilic acid glucuronide were minor metabolites by comparison. A comparison of these results with similar data obtained with human subjects on a self-selected diet suggested that a constant diet was not necessary for quantitative studies on the metabolism of supplemental doses of tryptophan, unless the conversion to niacin and its metabolites is of particular interest.

Children's Intake of Vitamins A and D. Data are presented on 1008 children's nutrition histories, taken in the first five years of life. Intakes of vitamins A and D and ascorbic acid have been computed in terms of quartiles of maximum and minimum levels observed. The intake of animal sources of vitamin A shows little variation from age to age and a relatively small range at any age. The intake from plant sources shows much more variation. There is a marked peak at the end of the first year, a decline in the two- and three-year olds and a rise following three years of age. After the first four months, plant sources supply an average of 40 to 60 per cent of the total vitamin A intake. After the first three months, more than three-fourths of these children exceeded the recommended allowances in vitamin A intake from diet; in addition vitamin concentrates were given 64 per cent of the time. The median vitamin D intake increased to a peak of 1000 I. U. daily at four to six months, then decreased to a level just below 400 I. U. daily by five years. During the first six to nine months, most of the ascorbic acid intake was from preparations rather than from dietary sources; thereafter, diet supplied an increasingly larger amount. After two years, the recommended allowance is approximately at the twenty-fifth percentile level of observed intake from diet alone.

Metabolic Patterns of Women at Various Weight Levels. Metabolic patterns of a group of seven overweight, seven underweight, and seven average weight women were investigated at fasting and following two test meals of varying carbohydrate and fat composition. Respiratory quotients, hourly energy expenditures, and hourly urinary nitrogen excretion were determined simultaneously with blood glucose, blood pyruvic acid, serum total lipids, and serum chylomicron concentrations at fasting and at intervals for 5 hr. Although individual differences in responses were observed among all groups, certain metabolic patterns associated with the overweight and underweight subjects were significantly greater than variations among individuals within groups. The overweight women as a group appeared to exhibit a delay in utilization of carbohydrate in the test meals compared with the average weight and underweight women. There were some indications of a greater preference for carbohydrate metabolism by the underweight women than by the average weight women.

Preventing Inanition in Vitamin B_6-Deprived Rats by Insulin. Insulin administration is a means whereby the food intake of vitamin B_6-deprived rats can be increased. This provides another method of separating the effects of inanition from those of the vitamin deficiency. By this method it has been ascertained that vitamin B_6 deficiency *per se* does not impair the deposition of fat in the rat. The decrease in fat storage usually seen in this deficiency is an unspecific effect. Changes in the liver transaminase activities seem to be a specific effect of the deficiency.

JOURNAL OF PEDIATRICS

Vol. 49, October, 1956

* Some blood and salivary nonprotein nitrogen constituents in children, and dental caries. G.

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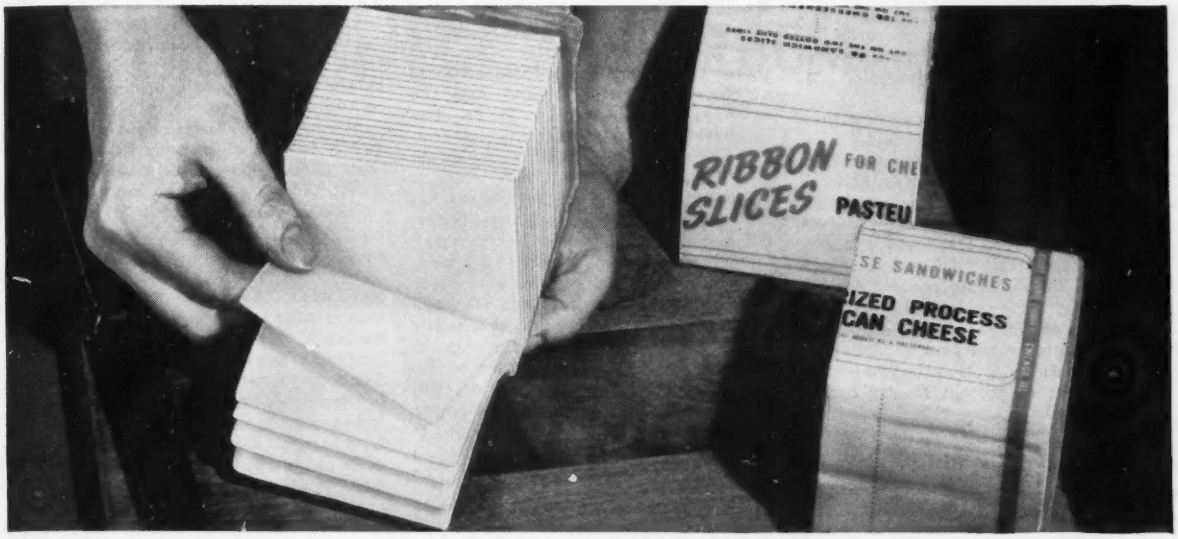

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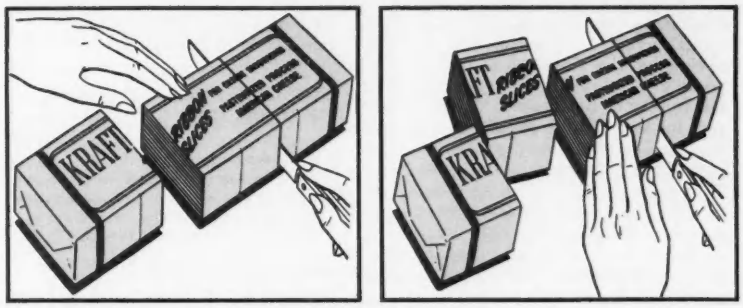

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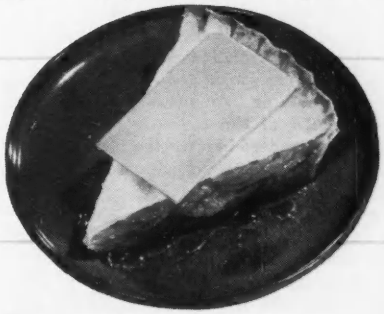

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Nikiforuk, S. H. Jackson, M. A. Cox, and R. M. Grainger.—p. 425.

Dental Caries. Quantitative data were obtained from ninety-four randomly selected seven-year-old children and forty, twelve-year-old caries-free children with respect to the following characteristics: blood urea, salivary urea, salivary ammonia, salivary urea plus ammonia, increase in ammonia nitrogen after 2 hr. incubation, decrease in urea nitrogen after 2 hr. incubation, salivary urease activity, the cumulated caries score, and the annual caries increment. A significant correlation was noted between blood urea nitrogen, salivary urea, and ammonia nitrogen. In the randomly selected children, urea in blood, ammonia in blood and saliva, the rate of production of ammonia or the rate of breakdown of urea, and the urease activity did not correlate significantly with dental caries expressed as annual increment in DMF, def surfaces, or cumulative DMF, def surfaces. In a study of forty caries-free children a significantly higher value for blood urea was found as compared with a control. This was interpreted as a reflection of different dietary habits of the two groups with respect to protein and/or carbohydrate intake.

THE JOURNAL OF SCHOOL HEALTH

Vol. 26, November, 1956

* Slimnastics. D. A. Field.—p. 275.

Physical Education Course in Reducing. "Slimnastics" was the name given to a course offered last spring by the Physical Education Department, Arnold College Division, University of Bridgeport. "Slimnastics" met for two 35-min. periods a week and was considered as meeting the graduation requirement for physical education. Two classes, one taught by a man, the other by a woman, were offered. The first course was open only to women students. At first, classes were divided, with the first half of the period devoted to discussions and the last half to conditioning exercises. Because of lack of interest, the discussions were reduced as the course progressed. Guest speakers for the discussion periods included the dietitian of the University Dining Hall. During one period each week, also, time was taken to discuss the next week's menus at the dining hall, which were supplied by the dietitian in advance. The students were taught the foods they should eliminate or take small portions of. At the end of the semester, there was a 4.5 lb. average loss for the eleven of the twenty original students who finished. In evaluating the course, the instructor felt that the main help which could be given was in the development of the proper attitude toward reducing, rather than giving good factual information. There was a wide discrepancy between the theory and practice of the students. The psychologic and sociologic aspects of motivation were found to be the hurdles which must be cleared.

THE LANCET

No. 6945, October 6, 1956

* Absorption in sprue of vitamins of the B complex R. H. Girdwood.—p. 700.

Absorption in Sprue of B-Complex Vitamins. The vitamins studied in the investigation were folic acid, riboflavin, aneurine, and pyridoxine. In each instance the patient was given subcutaneously a measured amount of the vitamin under investigation from a specially prepared batch, the potency of which was checked microbiologically. The urine was collected for 24 hr., and thereafter the same dose from the same batch was given by mouth and the urine again collected for 24 hr. The quantities of the vitamins excreted in the urine were estimated microbiologically. In all the "sprue" cases where it was estimated, the serum-vitamin B_{12} level exceeded 130 mcg. per milliliter, the lower limit of normal by the assay method employed. This does not, however, necessarily indicate that absorption of vitamin B_{12} was normal in all these patients, since in certain conditions (total gastrectomy) malabsorption of vitamin B_{12} may be demonstrated by radioactive techniques months or even years before the consequent development of a lowered serum-vitamin B_{12} level or of megaloblastic anemia attributable to deficiency of vitamin B_{12}. With the dosages and methods used in this investigation, it has not been possible to show in ten cases of idiopathic steatorrhea and related diseases that malabsorption of folic acid is accompanied by impaired absorption of aneurine, riboflavin, or pyridoxine.

THE NEW ENGLAND JOURNAL OF MEDICINE

Vol. 255, October 18, 1956

* Electrophoretic analysis of serum proteins in infants and children. I. Normal values from birth to adolescence. J. W. Oberman, K. O. Gregory, F. G. Burke, S. Ross, and E. C. Rice.—p. 743.

Vol. 225, November 22, 1956

* Acute hemorrhage from peptic ulcer. A follow-up study of 310 patients. A. B. Chinn, A. S. Littell, G. F. Badger, and A. J. Beams.—p. 973.

Serum Proteins in Infants and Children. In an attempt to establish a range of normal values of specific components of the blood serum proteins, fractionation by paper electrophoresis was performed on blood samples from 159 "well" infants and children ranging from birth to thirteen years. Total serum protein values are lower in newborn infants than their mothers at term. Serum protein slowly rises after birth reaching adult level in one or two years. Children six to thirteen years have somewhat higher total protein level than adults. Serum albumin values are lower in mothers at term than in the newborn infant, but fall to adult level by three months of age. Children six to thirteen years of age have slightly higher serum albumin levels than adults. Total serum globulin is lower in the newborn infant than in the mother at term. Serum globulin level falls steadily after birth to age three or four months then rises to reach adult level at eleven months. The alpha and beta fractions of serum globulin are higher in the mother at term than in the newborn. Alpha globulins fall slightly, beta globulins rise sharply during the first week of life. Percentage values remain fairly constant at these levels throughout life with a tendency to lower values with increasing age. Serum gamma globulins are not significantly different in mothers at term, in newborn infants, and in adults. Serum gamma globulin levels fall gradually to reach the lowest point at three to four months of age, then rise slowly reaching adult levels by three to five years of age.

Hemorrhage from Peptic Ulcer. In 173 patients whose index hemorrhages were due to duodenal ulcer and who had no operations before the index hemorrhages, it was found that 31 per cent had a chance of having a second hemorrhage within five years afterward. Those who survived the second hemorrhage and were continued under medical management had a 64 per cent chance of having a third hemorrhage within five years after the second. Age of the patient did not influence the chance of second hemorrhages, but mortality from initial hemorrhage increased with age. Survival from massive hemorrhage from duodenal ulcer did not appear to alter the risk of later death from causes other than ulcer. The patient with duodenal ulcer who had had multiple acute hemorrhages and was over fifty years of age has the least favorable prognosis for continued successful management.

PUBLIC HEALTH REPORTS

Vol. 71, November, 1956

* Cherokee Indian health survey. C. M. Cameron, Jr.—p. 1086.

Cherokee Health. The Cherokee Indians of North Carolina enjoy a state of health superior to that of many other Indian groups in the U. S. Health of this group compares favorably with other residents of the mountainous area along the Tennessee-North Carolina boundary. Preliminary reports indicate that the group tends to have a lower plasma ascorbic acid level than certain well nourished population groups in the northeastern states.

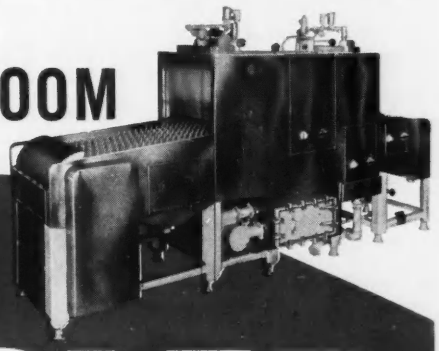
ADULT LEADERSHIP

Vol. 5, December, 1956

* What do you really do when you lead? M. Alpren.—p. 174.
* The use and abuse of parliamentary procedure. J. F. O'Brien.—p. 178.
* The role of the chairman—in committee and assembly. J. J. Auer.—p. 185.

Learning Your Leadership Effectiveness. Research has shown that the leader can't be too sure that he knows what he is really doing and that he is more likely to learn what he is doing from subordinates than from questioning himself. This article suggests several techniques by which the leader (or boss) can obtain such information

BIG DISHWASHER PERFORMANCE FOR THE SMALL DISH ROOM



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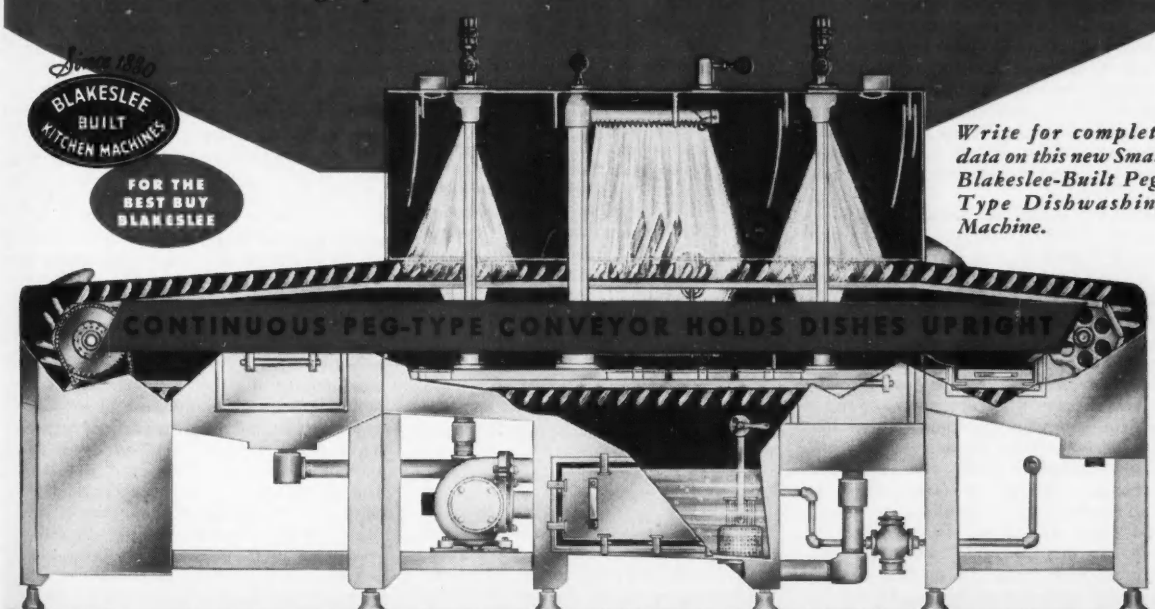

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from his subordinates. Five questions concerning the persons who might be called on for this type of help are given to aid the leader in selecting an objective person. The leader must also decide for himself how he is going to react to statements unfavorable to him, and how he will feel when subordinates say things that reflect on his actions. Having cleared these hurdles, there are three ways he can go about obtaining the information he wants. The first is by a conference—either planned or informal and unexpected. A second method is to have a formal meeting with the persons selected. The final way is to be available to employees, either by being in sight when employees are free (when they are about to begin their work day or are leaving for home) or by encouraging them to talk with you.

Parliamentary Procedure. The authors list "the seven cardinal sins and seven cardinal virtues of parlimentary practice." The abuses are: (a) use of parliamentary procedure where it doesn't fit; (b) use of formal procedure, regardless of situation (degree of unity, size of the group, and knowledge of parliamentary procedure in the group can affect this); (c) use of formal methods in settling simple procedural matters when there is actually no dissent; (d) running a committee as though it were a miniature assembly; (e) refusing an assembly the opportunity for informal discussion; (f) lack of preparation for a meeting; and (g) failure to observe essential legal requirements in conducting meetings. The seven virtues of parliamentary procedures are listed and discussed, as follows: (a) acceptance of the spirit of the parliamentary tradition—that once a battle is over, the whole organization pulls together; (b) the honest determination of true intent; (c) insistence on fair and meaningful discussion; (d) protection of the rights of the minority; (e) protection of the rights of the majority; (f) the implementation of discussion through use of principles of human relations and persuasion; and (g) the use of common sense. The author pleads that these "seven cardinal sins" be avoided in parliamentary practice and that the "seven cardinal virtues" be cultivated.

The Chairman's Role. In either a committee or an assembly, the chairman is a responsible, not a free, agent—responsible not just for presiding over whatever discussion may happen to take place, but for seeing to it that there is enough relevant discussion to carry out the assigned business. The committee chairman should be selected on the basis of two factors: what he knows about the subject and what he knows about discussion leadership. In action, the committee chairman plans the committee meeting, conducts it (an outline to help in planning the agenda is presented), and later evaluates the meeting. In contrast, the assembly chairman (usually elected) may be chosen for his relations with the group, his knowledge of parliamentary procedure, and his personal attributes. He will follow the pattern of planning, conducting, and evaluating the assembly meeting, as the committee chairman does with the committee meeting. However, tradition provides him with a more rigid pattern to follow in planning the agenda and conducting the procedures. A committee meeting is often most successful when informal procedure is followed, whereas an assembly meeting most frequently calls for more formal parliamentary procedure.

AMERICAN RESTAURANT MAGAZINE

Vol. 40, November, 1956

- Your spice shelf: gold mine of profitable ideas.—p. 132.
- Pointers on poultry. C. E. Blackburne.—p. 150.
- Don't drown the turkey!—p. 151.

Spices. Menus can be made distinctively different by the use of spices, of which there are about fifty different kinds (including the herbs, aromatic seeds, and seasoning salts) available to the food service operator. The best guide in using spices is to become conscious of "compatibility." It is impossible to provide more than a few suggestions along this line in one article, but if the idea of compatibility is learned, the operator can proceed "on his own." A few tips for use of a number of spices with meats, vegetables, and desserts are offered, but the plea is for the use of imagination and thinking in terms of the basic compatibility of seasonings.

Poultry Pointers. This brief, one-page article includes pointers for buying poultry, thirty-six ways to serve chicken and turkey, and methods of preparing fried, roast, and broiled chicken.

Cooking Cut-up Turkey. Work at Michigan State University with cut-up poultry testing the roast-poach cooking method is summarized in this article. For best results, we are warned of the dangers of using too much water. Tests using no water, a small amount, and a large amount were made. Samples of the meat cooked with a small amount of water were judged best by the taste panel, with those of the meat cooked with no water second choice. The same results are reported for the drippings. In yield, the samples cooked with little water and no water were superior to that cooked with a large amount of water. No advantages were found in adding water to the meat as far as yield and flavor are concerned, and there is a definite disadvantage in adding relatively large amounts of water during roasting.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 21, November, 1956

- What a food service director expects of the boss. T. W. Minah.—p. 54.

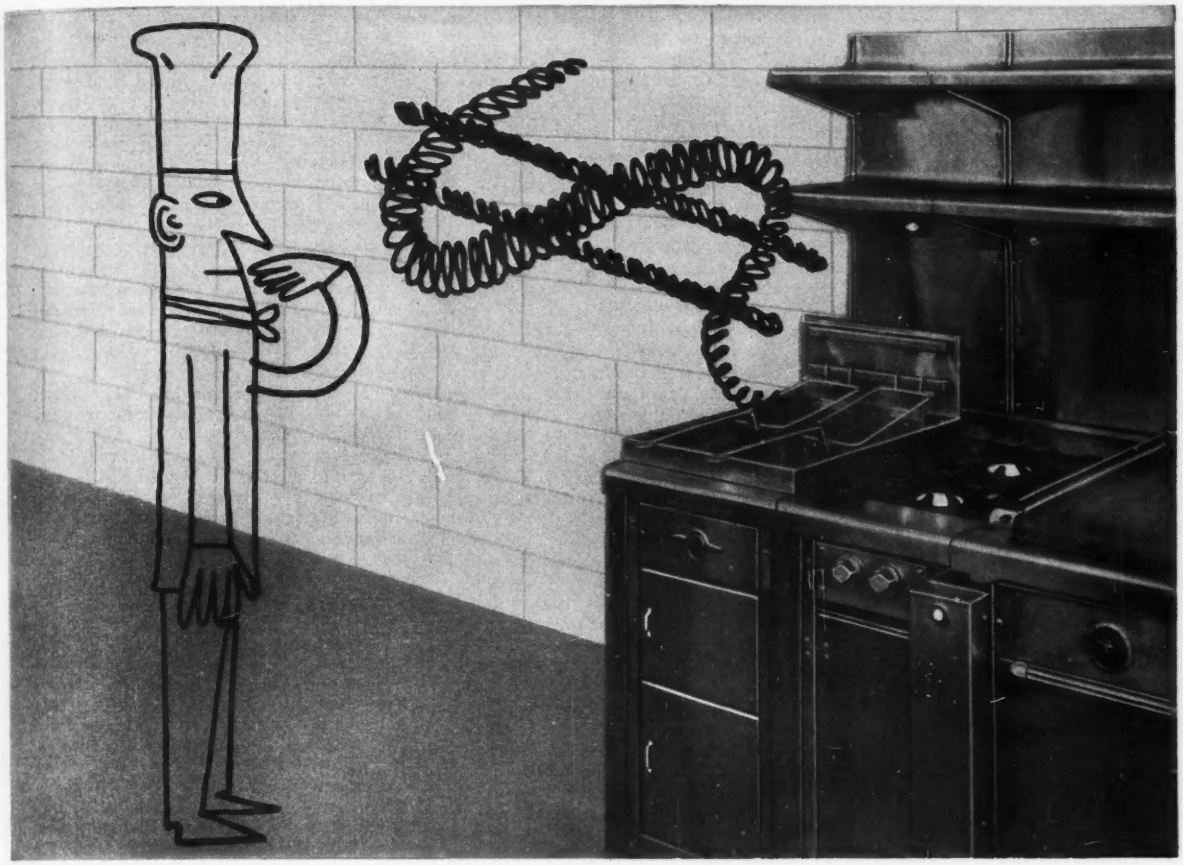
What to Expect of Administration. Although this article was written by the food service director of a university, the principles which he outlines would apply to almost any working situation—hospital, industry, restaurant, public health department, or whatever. In effect, he puts down in well organized form the functions of top management. The food service director, he says, can expect direction and leadership from administration. He would be told the *what*, *who*, *where*, and *when* so that he could provide the *how*. There would be an organization plan for the entire organization, with a written statement to define his position and clearly state the limits of his authority, obligation, and responsibility. The administration would provide a plan of coordination so that the food director's working arrangements with other departments would be explained. He can reasonably expect to receive both logistic and moral support from management, and a system of control established through policy, procedure, and budget, as well as through direct supervision, indoctrination, and leadership. The director should expect respect (as he earns it) both for himself and his organization. Considerable thought must be devoted to motivation, both for the staff and the food service director in respect to personnel policies. Finally, he should be consulted when plans are made for changes in housing or feeding facilities.

FOOD ENGINEERING

Vol. 28, November, 1956

- New research facts on—how foods weather A-bombing. McGraw-Hill Washington News Bureau.—p. 59.
- They're making better flexibles.—p. 73.
- New packages appeal, simplify.—p. 83.

Food after A-Bomb Attack. Results of the A-bomb blast detonated in the desert in Nevada in 1955, as regards food, are now becoming available. In general, physical damage was about what was expected, but irradiation was considerably less. Scarcely any foods were rendered completely unsafe for human consumption, and vitamin losses and other chemical changes were only minor. Foods containing additives, particularly salt, became more radioactive than those in their natural state. Salt exposed to A-bomb neutrons is likely to retain some radioactivity permanently (although not sufficient to cause illness) and becomes yellow. Phosphorus-containing foods showed highest radioactivity levels, and except in an emergency it would be unwise to use them. Flavor and texture changes that occurred were often similar to those observed in foods exposed to gamma rays in cold sterilization research, although changes were so slight they were hardly detectable by skilled tasters. Physical damage was mainly due to displacement and much of it could be avoided by storage arranged to take advantage of these findings. The blast dumped food off shelves, resulting in breakage, denting, and crushing—but only when shelves were at right angles to the source of the blast. Other damage, mainly to soft-packaged products, such as flour and sugar, came from flying glass and wooden splinters which struck the foods. Semi-perishables, such as apples, onions, and potatoes, were extensively crushed and bruised, resulting in accelerated spoilage. None of the plastic film bags burst.

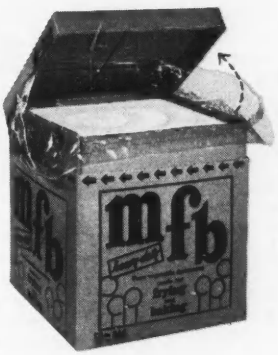


Holy smoke! Better call on heavy-duty MFB

...the shortening with the high smoke point. When you get a "smoke signal" from your fryer, better look at your temperature control . . . or your shortening. If shortening break-down is your problem, then delicate food flavors are being lost . . . and your equipment is getting all gummed up . . . you're having too much fat absorption and burn-off.

Better switch to Heavy-Duty MFB—the shortening with the high smoke point. It's made to stand up under heaviest continuous frying. It's a lot more economical in the long run!

Here's a tip. Heavy-Duty MFB bakes as well as it fries. So simplify your storing . . . use all-purpose, Heavy-Duty MFB.



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Polyethylene film showed no irradiation; Mylar very little; but Pliofilm, Cellophane, and Saran-coated Cellophane absorb more neutrons. No tests to learn the effect of fall-out miles away on food were made.

Flexible Packaging Materials. Although no one paper, film, or metal foil has the functional properties to fill all the needs in packaging all types of foods, developments in laminated combinations of films and in "coatings" make a large variety of packaging materials possible. Coatings may be applied to papers or plastic sheets, or any combination of papers or films can be laminated to one another or to foil, or they can be coated and them laminated in innumerable combinations. For example, butyl rubber is being added to a wax-coating on glassine to give an extra tight seal. This would provide crackers, for instance, with better moisture protection and allow them to stay crisp longer. Polyethylene-coated papers are being used for wrappers, especially where the poly surface is in contact with frozen foods, and thereby serves as a releasing agent on unwrapping. Poly-coated Cellophane is being used for meats, seafoods, dessert mixes, confections, frozen orange juice, olives, pickles, and so on.

New Packaging. This article presents a terse review of new developments in the packaging field as applied to food and includes such items as: the use of polyethylene bags for shipping cream in corrugated boxes; vacuum packaging of sliced luncheon meats, using the canning technique of all-metal containers, but substituting Saran for most of the metal; and disposable pouches for single portions, such as soy sauce and fractional packages, eliminating the need for measuring, such as several 1-c. bags of rice or brown sugar, within a larger outer bag.

FOOD SERVICE MAGAZINE

Vol. 18, December, 1956
* How much wiring? J. R. Myers.—p. 22.

Electrical Wiring. This is a report of 74 replies from a questionnaire sent to restaurant operators in thirty-one states. Almost 80 per cent of these operators use electricity for some cooking, and 25 per cent are using infra-red lamps for food or plate warming. Five are already using microwave cooking. Of these restaurateurs, 50 per cent reported having wiring service of 600 amps or better. The range was from 100 to 3000 amps. Based on this study, it would seem that no restaurant can get along adequately with less than a 400-amp service. As meal volume grows, the operator's need for production equipment, refrigeration, air conditioning, lighting, and all other applications of electricity expands, too. The increase in wiring capacity follows a definite curve, which is illustrated by a graph. In looking ahead, only 35 per cent thought that they had adequate electrical capacity to double their business (a goal for 1965). In terms of cost, 26.5 per cent pay 2 per cent of their operating dollar for electricity; 23 per cent allot 1½ per cent; and 22.4 per cent spend about 1 per cent. Other reported figures ranged from 1 to 3 per cent of costs.

HOSPITAL MANAGEMENT

Vol. 82, December, 1956
* Frozen kosher meals. D. H. Zumsteg.—p. 78.

Frozen Kosher Food. A kosher restaurant in New York City has developed a line of frozen kosher meals especially designed for use in hospitals which may have orthodox Jewish patients but which do not operate kosher kitchens. The foods served in the restaurant are now delivered to fifteen New York City hospitals. The food that is frozen is the same food that is served in the restaurant, and in the hospital it is served right in the kosher pack after heating, so that the patient knows that the food has not come in contact with un-kosher implements. As the frozen dinners proved their value, requests were received for low-sodium items. This presented a problem, since koshering involves the use of salt. However, the restaurateur has now developed four items—roast chicken, boiled chicken, roast beef brisket (*deckel*), and boiled lean rib meat (*flanken*)—which meet the sodium restrictions needed. This has been done with the help of monosodium glutamate (which contains only one-third as much sodium as sodium chloride) to make the most of the existing flavor with a minimum of sodium. For patients who cannot afford the additional cost of the kosher food in the hospitals, the Federation of Jewish Philanthropies pays the difference.

HOSPITALS

Vol. 30, November 16, 1956
* Pitfalls in planning and layout. S. J. Mooring.—p. 74.

Vol. 30, December 1, 1956
* Put the holiday on your trays and in your menus. E. G. Upjohn.—p. 78.

Pitfalls in Planning and Layout. How can we improve our effectiveness as valuable members of a planning team? The first step is to supplement the experience and formal training that we have had by constantly reviewing and studying books and current articles relating to food service layouts. We need to learn state health department regulations and to visit installations and equipment firms. We should promote and assist with research relating to dietary department planning and layout. It is also important for us to learn how to read blueprints and to interpret the codes and symbols used by the architects and engineers. When the over-all layout is considered, you would probably recommend a centrally-located dietary department which would be accessible to elevators, dumbwaiters, employees' lockers, and floor pantries. The square footage allocated to the dietary department should provide for necessary administrative offices; receiving, storage, food preparation, service and dishwashing units, clean can storage, can washing, trash and garbage collection center, floor pantries, personnel and patients' dining rooms, formula rooms, lavatories, and rest rooms for all workers. At future planning meetings, the following factors should be given considerations: work flow, aisles and work lanes, offices, storage, vegetable preparation unit, meat preparation unit, steam cookery, range and oven unit, salad preparation unit, coffee preparation unit, scullery, dishwashing, lavatories, tray service type, and cafeteria. It is advisable to know recommendations and standards for the formula room and student nurses' laboratory, which should be followed as closely as possible in planning for the hospital.

Holiday Tray Favors. This is a how-to-do-it article on making tray favors for various holidays. Directions are given for making inexpensive Christmas wreaths from marshmallows and ready-to-serve cereal and for more elaborate angels. For New Year's a "fantasy" is suggested. Instructions for making Lincoln's log cabin from Graham crackers, dates, walnuts, and whipped cream are also included.

THE HOTEL MONTHLY

Vol. 64, November, 1956
* Canned pears can be bought to exact specifications. L. Barden.—p. 55.

Canned Pears. For desserts which offer advantages as to portion costs, preparation time, and availability, this article suggests the use of canned pears, and offers a number of suggestions for variations in serving the standard "Pear Helene."

INSTITUTIONAL FEEDING AND HOUSING

Vol. 7, November, 1956
* How to bone and carve a turkey. P. Haultcoeur.—p. 10.
* Remove those lipstick stains.—p. 15.
* Don't be stuffy about stuffing. E. Blair.—p. 34.
* Solving a dish-handling problem.—p. 48.
* Clean floors last longer. P. Patterson.—p. 54.
* Serve better French fries.—p. 60.
* Put uniform color to work. E. Ruder.—p. 64.

Vol. 7, December, 1956
* How to profit with prepared bakery mixes.—p. 10.
* You must teach good work habits. C. Blackburne.—p. 20.
* Is your tableware handling up-to-date? L. Kotschevar.—p. 26.
* Purchasing for profit—sweet potatoes, grapefruit, turnips, bananas. R. A. Seelig.—p. 30.

Carving Turkey. In a picture story, a hotel chef demonstrates how to bone a turkey before roasting, the conventional carving method, and "carving on-the-frame." Boning turkey before roasting results in at least 15 percent more cooked meat, it takes about half the oven space, a third less time to cook, and less skill to slice and serve in accurate portions. Also, stock or broth made from raw bones is superior to that made from the bones of a cooked bird. An entire turkey can be boned, rolled, and tied for roasting in about 5 min., with a little practice. For buffets or use at special carving stations, precarved turkey, or turkey carved "on

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the frame" permits a less-skilled employee to handle the serving. With this procedure, the skin is lifted free without tearing, and the meat below is sliced. The skin is replaced and the bird put on the buffet looking like a whole, untouched bird. This method, however, allows meat juices to drain away and if not served immediately, the meat will dry out.

Lipstick Stains. Four steps in removing lipstick stains from glassware and cups are outlined: use of rotating brushes, use of plenty of hot water (at least 150°F. for washing and 180° for rinsing); use of a wetting agent; and final inspection.

Kitchen Injuries. Even with an excellent accident prevention program, an occasional cut will occur. To handle cuts, punctures, or scratches until a doctor comes, a qualified person should be able to: (a) stop serious bleeding; (b) use an accepted antiseptic; and (c) apply a sterile gauze pad and snug bandage. Serious bleeding must be stopped as soon as possible, by direct pressure, or, if this is not successful, by pressure at the appropriate pressure point. Whether a vein or an artery has been cut should be determined, and pressure applied as indicated. A good safety and first aid program pays dividends.

Clean Floors. Since floors may represent as much as 10 per cent of the total building cost, they must be cleaned regularly and properly to protect this investment. Each type of flooring requires its own cleaning method, and the average volume food service operation may have as many as five different types. This article describes the functions of the various cleaning operations, sweeping, mopping, and machine cleaning. Various types of cleaners—soaps, detergents, alkalis, and solvents—are discussed. Actual methods of cleaning and care of equipment are also considered, as are the cleaning requirements for the following types of flooring: quarry tiles, marble and terrazzo floors, asphalt tile, rubber tile, cork tile, vinyl and vinyl asbestos, linoleum, and wood.

French Fries. Three things are important in serving good French fries: the potato itself, the frying equipment, and the frying shortening. Better French fries are obtained from potatoes held at least three weeks at between 70° and 80°F. with free circulating air. When the time comes to cook and serve them, those with mold or dark spots should be discarded. They should be peeled and eyed carefully. For best results, the sizes should be of uniform size and weight. The frying equipment should have a dependable thermostat so that proper frying temperature is maintained at all times. It is preferable to cook potatoes from raw to done in one operation, which usually requires about 7 min. at 375°F. if the proper load ratio is maintained. However, in some operations, they are often blanched during slow periods, and then browned as ordered. The load ratio applies to the amount of food fried at one time and the fat capacity of the kettle. The recommended ratio for French fries is 8 to 1. In selecting shortening to use in frying French fries, the following criteria are suggested: high smoke point, bland or neutral flavor, stability, freedom from gum, and uniformity. Proper shortening turnover is about 20 per cent—that is, about 20 per cent new shortening should be added each day to keep it clean. Frying shortening should also be thoroughly strained at least once a day (oftener, if the load requires it) to remove food particles.

Stuffing for Poultry. Roast poultry can be served throughout the entire winter season, not just the holidays. Today, stuffings have progressed far beyond the conventional bread, onion, and sage, and they offer unique advantages. They can be used as a means of making larger and better tasting portions, contribute to menu variety, and flexibility, and give a lilt to the printed menu, when listed descriptively. Eight "different" stuffings, with appropriate suggestions for menu listings, are given, as well as a chart indicating appropriate stuffings for chicken, turkey, duck, and goose. The stuffing pointers include tips on achieving light texture, amounts to use inside the poultry, general suggestions for flavor, and safe practice from the bacteriologic viewpoint.

Dish-Handling Method. A convenient, pass-through bussing window has been installed in the cafeteria of the Fairview Park Hospital, Cleveland. It is unique in that, although it is only 6 ft. wide, it has "slots" or compartments to accommodate fifteen trays at a time. The operator of the dishwashing machine pulled the trays through, scrapes them, loads them into dish racks, and then sends them through the dishwasher. The entire operation for the staff cafeteria load requires only one employee; a part-time helper from the main kitchen helps out when the flood of patients' trays arrives from the wards.

Clean Floors. Since floors may represent as much as 10 per cent of your total building costs, they must be cleaned regularly and properly to protect this investment. Each type of flooring requires its own cleaning method, and the average volume food service operation may have as many as five different types. Sweeping, the first step in floor cleaning, may be done with a variety of types of brooms and brushes, each adapted to different jobs. The average operation can depend on three: the floor brush (push broom) with horsehair or nylon bristles and a reversible handle; the fiber broom with palmetto bristles; and the regular corn broom. Dust pan and sweeping compound complete the sweeping equipment. Mopping may be dry mopping (to pick up dust where there is not enough solid refuse to warrant sweeping) or damp mopping, which may follow sweeping.

Color in Uniforms. The value of attractive decor in restaurants and dining rooms is well recognized. Even without expensive decorating, uniforms can provide a relatively inexpensive means of bringing new color into an establishment. The first consideration is to choose a color that harmonizes with the general color scheme. Final selection should depend on the the effect desired. Warm colors (yellow, red, and orange) tend to stimulate, wake up the senses, and bring the warm-colored object closer. Cool colors do the opposite. Some operators use two sets of uniforms—a warm "wake-up" shade for the breakfast trade and a cool set for the dinner hour. The type of clientele may also affect the selection of color for uniforms. For young people, warm colors may enhance an atmosphere of gaiety, while for the family trade, a less obtrusive shade will be in order. Cool colored uniforms in the summer can add to the effect of air conditioning.

Prepared Bakery Mixes. Prepared baking mixes now available to the volume food service operator include: pancake, waffle, doughnut, roll, coffee cake, biscuit, cake, pie crust, cookie, and brownie mixes. They offer the following possible advantages, depending upon the individual situation: simplified purchasing, controlled inventories, less storage space required, portion-planned baking, less skilled labor, elimination of many supplementary baking ingredients, simplified cost control, and less chance of human error (because of fewer weighings). A good baker can be creative with mixes, providing innumerable variations of the basic product, as this article proves by listing possible ways to vary brownies with: nuts, icings, as to shape, and manner of service. Close-up photographs also show how single-knot, double-knot, and triple-braided rolls are formed, all from mixes.

Training. This article defines the instructor in a training program as "someone helping another acquire the 'desirable' habits necessary for the job." An excellent method is to allow the trainee to see the job performed by a skilled worker—if necessary, the teacher. Then an explanation of the *how* and *why* can be understood. Steps in training a sandwich man and a salad girl are detailed.

Handling Tableware. Factors in the purchasing and care of china or plasticware, silverware, and glasses are discussed. To determine the amount of dishes and flatware needed, the following must be considered: type of service and menu, length of the serving period, number of patrons to be served, duration of peak serving hours, speed of service, time necessary to wash soiled items and return them to the serving point. A general rule is to maintain an active supply of dishes and flatware double the seating capacity, but each institution should analyze its own specific needs. Bussing is important in the care and maintenance of tableware. To increase dish life: (a) prevent china from banging or rubbing together; (b) do not use china of different weights in the same service. The weight of heavier pieces may damage lighter ones. (c) Store cups in single layers only. (d) Keep dish and bowl stacks limited to a reasonable height. For most designs, stacks should not be higher than one and a half times the diameter of the piece, both for convenience and safety. Dishwashing specifications include adequate dish table space for sorting, scraping, pre-rinsing, and

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so on. Glasses used for milk or which have lipstick smears should be separated at the soiled dish table and brushed to remove the marks or milk stone. For the dishwashing itself, proper temperature and amount of water, a good detergent, and proper rinse temperatures are important. Air drying for glasses is recommended. Stains on plasticware, and on china, can be delayed by frequent vigorous washing with a rag and soapy solution. If stains do develop, bleaches or special stain removers may be effective.

Produce Purchasing. Characteristics of sweet potatoes, grapefruit, turnips, and bananas which should be considered in purchasing are discussed, together with several suggested ways of serving each food.

INSTITUTIONS

Vol. 39, December, 1956

* Making refrigeration work for you. Part II. C. K. Litman.—p. 16.
* System simplifies one-motion storage. L. H. Kotschevar.—p. 90.

Refrigeration. In this, the second of a series on refrigeration, the author discusses basic principles and materials in refrigeration. Refrigeration does not "make" cold; it removes heat. Refrigeration is always effected through the use of an enclosure, preferably insulated, and a means of heat removal. The better the enclosure, the better the refrigeration will be. Thus it pays not only to have the refrigerator well constructed and well insulated with tight-fitting doors, but also to have personnel trained to keep doors closed, not to put in hot foods, and so on. Components of a refrigeration system include: the air in the cabinet, the refrigeration evaporator, the refrigerant, the compressor, the air cooled condenser (or the water cooled condenser), the outside air (or water), and air if cooling tower is used (or ground if water is being wasted). The functions of each of these components is discussed as they relate to the problem of heat transfer. The different types of compressors are named, and their differences briefly described. Controls for the refrigeration process, such as the thermostat and valves, are also considered.

One-Motion Storage. Work simplification can bring to light inefficiencies in many common storage procedures. For example, food may be transferred too many times from one utensil to another. This could be avoided by using more multi-purpose utensils. Other ideas for one-motion storage, which can make the total operation more efficient, are given. A necessary part of this idea, however, is that storage areas must be arranged so that there is the shortest possible distance between the point of storage and the point of use. Six principles to be followed if the profit-making potentials of one-motion storage are to be reaped, are: (a) Store frequently used items where they are easy to get at, and less frequently used items in less desirable storage areas. (b) Storage should be at the point of first use. (c) Plan and organize storage. (d) Eliminate unnecessary storage or consolidate where possible. (f) Only like items should be stored in front of one another. (g) The weight of the item is frequently the factor that determines the storage space.

THE MODERN HOSPITAL

Vol. 87, November, 1956

Dietitians touch all the bases at Annual Meeting in Milwaukee. M. P. Huddleson.—p. 114.
* Almonds add imagination to meals. I. L. Dolan.—p. 124.

Almonds. Packaging developments have made almonds an all-year-round food, whereas it was formerly considered just a holiday accoutrement. Whatever the need, there is now a convenient package. Almonds are high in nutritive value, providing 21.66 per cent protein, 6.2 calories per gram or 2825 per pound. There is a definite trend toward the use of the nut in its unblanched form, because authorities feel there is better flavor. Almonds provide one medium of adding interest to a hospital menu, through their unusual flavor and texture. An unusual suggestion is that chopped almonds can be served as toppings for hot cereals, thus adding interest even to breakfast. Almonds can be used slivered as garnishes for vegetables. Possible uses in desserts are also listed.

PERSONNEL JOURNAL

Vol. 35, November, 1956

* Directing participation: Some forces at work in most groups. E. E. Jennings.—p. 209.

Vol. 35, December, 1956

* Forces that lead to group agreement and decision. E. E. Jennings.—p. 250.

Directing Participation. The tendency to participate increases as group members become aware of differences of opinion. Also, other members' participation will be directed largely to members who have divergent opinions, and the amount of communication tends to depend on the size of the discrepancy between opinions. In a training situation, the training director can apply these principles by finding out how each member feels on a given subject and providing the trainees an opportunity to direct their communication in an effective and satisfying manner. If he recognizes the holders of divergent opinions, he can direct his remarks to these people or stimulate other trainees to refer pertinent points to them. Communication is normally directed toward those who are responsible, and a member who is resistant to changing his view may be ignored. Conservatives tend to persuade one person at a time, while those with extreme opinions may try to influence the entire group. Status in the group also influences communication. Those with the most "status" tend to be those to whom remarks are addressed, both by others with high status and those with low. The most important skill a training director has is that of bringing everyone into a discussion. This can be done most effectively by recognizing to whom discussion is and is not directed, and the reason—then using this information to equalize the discussion.

Group Decision in Training. The author discusses the manner in which the principles learned in investigations on group-discussion-decision can be applied to the training situation. It has been shown that if a group feels strongly that the particular training is something that will have great usefulness and application to their jobs, they are more apt to agree on a solution than if the training is looked upon as unimportant. Also, it has been shown that the larger the group, the less likelihood there is that agreement will be reached. As a corollary, the theory that group agreement will increase with the awareness that the solution is generally supported by the group is discussed. If the training director "plants" people in the group known to agree with a particular solution, agreement in the entire group is more likely. The more skilled the training director is, the greater is the possibility that the group will reach the desired opinion, also. It is also easier to steer the group toward agreement if the training is kept "group-centered" rather than director-centered. However, care should be taken not to allow the group to become too "group-centered." By participating in the discussion, the director can "steer" the thinking, and his role is far more effective in changing attitudes and arriving at group consensus than if the group is left alone completely. Premature solutions can be avoided, if the director allows minority views to be heard, whereas in the leave-the-group-alone procedure, extreme views cannot effectively compete with the pressure of the majority. Quality thinking depends on the opportunities the situation affords minority opinions to be heard.

RESTAURANT MANAGEMENT

Vol. 79, November, 1956

* Spoilage. Kitchen Cues. A. and G. Eiss.—p. 34.
* How we licked a fire. E. Smith.—p. 58.
* What's the story on stainless steel? R. E. Paret.—p. 64.

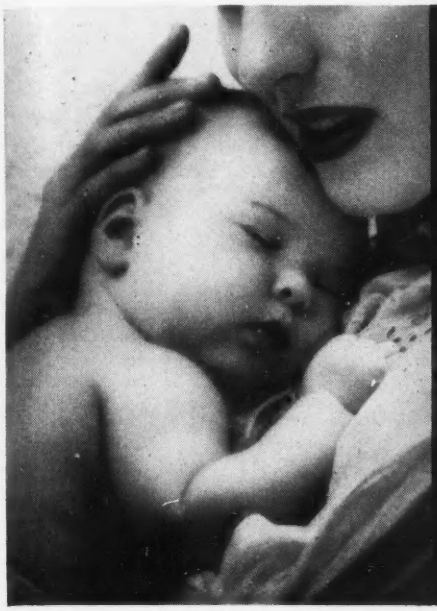
How to remove stains from bare floors. D. E. Smalley.—p. 72.

Vol. 70, December, 1956

* Meeting personnel problems 24 hours a day. W. Clements.—p. 44.
* Effective cost control ideas. D. Markstein.—p. 50.

Turning leftover potatoes into profits. A. Goldsmid.—p. 52.

Spoilage. The authors present a simple set of rules to prevent loss of quality in perishables: buy fresh, handle carefully, refrigerate immediately. With few exceptions, refrigeration is the answer in eliminating spoilage, but care must be taken to treat individual foods according to recommended temperatures. Meat keeps best around 35°F., while vegetables and dairy products need a little warmer temperature, 38° to 40°. Eggs and dairy products should be stored separately, so that they won't pick up flavors from vegetables and fruits. Bananas need a comparatively mild storage temperature; the vestibule of a



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Clinical studies* indicated "infants accepted meat base formulas well. Fewer patients were sensitive to meat than legumes." Incidence of digestive upsets low.

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Authoritative report* substantiated the nutritional superiority of meat proteins over legume proteins. No instances of weight loss or anemia in over 100 infants receiving Meat Base Formula were disclosed.

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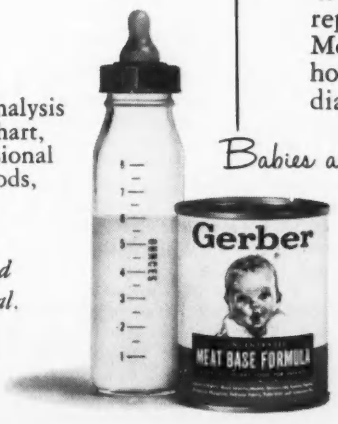
For Meat Base Formula analysis and feeding instruction chart, write to: Dept. of Professional Services, Gerber Baby Foods, Fremont, Michigan.



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FREMONT, MICHIGAN

**Rowe, Albert, Jr., M.D., and Rowe, Albert H., M.D.: Cal. Med. 81:279 (Oct.) 1954*

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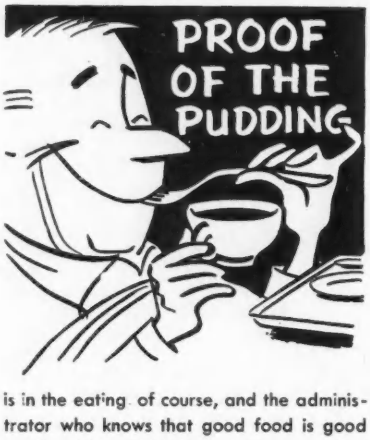

is in the eating of course, and the administrator who knows that good food is good public relations thinks first about the original hot and cold mobile food service, the Meals-on-Wheels System.

Learn how the savings in labor pays for the Meals-on-Wheels System.

Write for full details and literature to

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walk-in cooler is perhaps a good place to keep them and tomatoes. For leafy vegetables, the humidity is also important. If the evaporator in the cooling room is undersized, the vegetables can be sprinkled with cold water, or the floor may even be kept wet to provide sufficient moisture. Some foods require dry storage: coffee, tea, butter, lard, sugar, salt, and flour, for instance. To prevent discoloration of potatoes cut for French frying, and of sliced bananas, apples, and peaches, a commercial antioxidant powder may be used.

Meeting the Problem of Fire Damage. In Port Washington, Wisconsin, one family has owned and operated a fishing business and a restaurant specializing in fish for more than a generation. About three years ago the restaurant was destroyed by fire. Because the enterprise was a community institution, offering, together with the fishing business, employment for almost a hundred people of the community of 5000, it was decided to rebuild, and that the new restaurant would be opened with the same prices on the menu as before the fire. To do this, the most efficient use of labor time would be needed. This has been done, and in contrast to the old restaurant which just "grew like Topsy," the new one was planned for the most efficient operation possible. Refrigeration is located wherever it is needed; a pass-through counter speeds service. Other planning was done to make possible an extraordinarily clean and sanitary operation. Every surface—vertical and horizontal—is cleaned every day. Floor and walls are tiled and equipment is stainless steel. A special dishwasher for glasses and silver next to the automatic dishwasher allows one worker to take care of both jobs. Other details of the operations are listed. A training program, in which each new waitress receives detailed printed instructions about her job, is carried on continuously. The article features reproductions of the chart of waitresses' duties, their instructions for cleaning off tables, and a memo to all waitresses, hostesses, and bartenders giving full information about a new dish the restaurant plans to offer.

Stainless Steel. The author, who is Stainless Steel Specialist of the American Iron and Steel Institute, predicts a long siege of nickel shortages, which will affect the supply of stainless steel, since its production requires a large proportion of the U. S. nickel supply. The most important quality of stainless steel to the restaurant field is its corrosion-resistance. Other qualities which endear it to the food field are tensile strength, brightness, resistance to high temperatures, cleanability, low maintenance costs, and long operating life. For long life for stainless steel, authorities recommend that it be cleaned regularly and that food deposits not be allowed to remain on the surface for long periods. A grade of stainless steel containing 18 per cent chromium and 8 per cent nickel, known as Type 302, has also become popularly known in the restaurant field as "18-8." The addition of nickel to a chromium and iron combination produces "austenitic" stainless steels which in general have a higher corrosion-resistance and higher strength than do straight chromium types. They are also easy to weld and non-magnetic. Type 430 is a straight chromium stainless steel which *is* magnetic and can be used in restaurant applications such as bake oven liners, cabinets, range hoods, splash boards, sinks, tables, and utensils. The author thinks it is perhaps unfortunate, in these days of nickel shortages, that the restaurant industry has been so thoroughly sold on "18-8," when other types have good corrosion-resistance, can be highly polished, and have other properties comparable to the "18-8." A new family of stainless steels, the "200" series, has also been developed which uses less nickel but has practically the same properties as "18-8." Extensive use of these new steels should mean a great availability of stainless steel for everyone. To date, every test application of "201" and "202" has proved satisfactory in such uses as utensils, sinks, counters, and other pieces of kitchen equipment.

Operating 24 Hr. a Day. The operator of a chain of five drive-in restaurants in Denver describes the company's "master-plan" for personnel. It involves a hiring plan whereby newspaper want ads are used and present employees are given bonuses for bringing in new employees. The company does its own training; it does not expect to be able to hire experienced workers. Incentives are offered to all employees, the plans usually varying from one restaurant to another in the chain, depending on the individual manager's ideas. For the night shift, women whose family situations make such hours more desirable, are employed. A "master control panel" in the office of the headquarters restaurant allows the owner to know just how many employees are working at a given time. From experience, a "load balance" for each location for every hour of the day has been determined. When vacancies occur, the load limit is checked, and the number of replacements needed is calculated. Then, from a list of "stand-by girls," willing to work part time on short notice, the replacements are obtained. Special incentives are offered to these "stand-bys."

Cost Control Ideas. A highly successful restaurateur from New Orleans has a philosophy that "there are two principal ways to control costs. Watch *every* place waste can occur, and set up a plan for good buymanship." He buys when things are cheap; for instance, a whole year's supply of shrimp during the lowest-cost season, and then stores it in public freezer warehouses. By analyzing past records, probable needs can be projected ahead. This forms the basis of his quantity buying. Inventories, portioning, and waste must be carefully controlled if savings from wise buying are not to evaporate, however. In this restaurant, the inventory control and customer check-writing procedure have been integrated to form an automatic check on supplies used. Portioning is another area which receives careful scrutiny and procedures are well outlined to prevent waste.

To the future...

A young woman needs the help of those concerned with human welfare... to build and maintain a healthful future for herself and her children.

A good diet is needed before pregnancy to insure optimum growth of all tissues and adequate storage of calcium in the skeleton... and during pregnancy to prevent any undue nutrient loss from maternal tissues, and to permit storage of nutrients in the body of the growing infant. Nutritional supplements are generally neither effective nor economical substitutes for a good diet and do not provide opportunity for correction of faulty eating habits. Their use without evidence of deficiencies requires critical appraisal by obstetricians, according to conclusions of a team of scientists who studied dietary intakes of more than two thousand pregnant women, evaluating health and nutritional status of mothers and infants.

Among 404 pregnant women on marginal diets, incidence of prematurity was found to be greater among those whose nutrient intakes were lowest. Of 227 mothers whose diets were rated best, 4 per cent of the infants were premature. Of 177 mothers whose diets were rated poorest, 9.6 per cent of the infants were premature. The diets of these women were particularly low in calcium because of a low milk intake.

Four cups of milk each day during pregnancy . . . and six cups during lactation... to drink... used in food preparation . . . as cheese or ice cream . . . will provide most of the calcium needs of these reproductive periods . . . and generous quantities of high quality protein and other essential nutrients.

In planning meals for the mother-to-be, *milk and milk products are foundation foods for good eating and good health.*

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

Since 1915... promoting better health through nutrition, research and education

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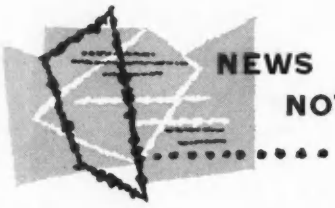

Government Research in Home Economics Recommended. At a meeting December 3 to 5 in Washington, the Department of Agriculture's Home Economics Research Advisory Committee stressed the need for basic research and for developing research tools as well as practical information to improve work in field of home economics. The group also called for research to learn more about certain factors in foods, particularly the role of fats in human nutrition. Some of the areas which need exploring were defined as: the relationship of the amount and kind of fat to metabolism of other nutrients; implications when amounts of different types of fat in diets are unusually high or low; and fatty acid requirements of various age groups; and basic research on fatty acids and other fat-like substances in food. In the field of food and nutrition, other recommendations given high priority included the need for research to determine the effect of thawing and refreezing on the quality and safety of frozen food.

Fellowships. The *General Foods Fund, Inc.*, has announced grants totaling $84,000 for 1957 for the establishment of twenty-four home economics fellowships for graduate study. Educational institutions which will benefit by these fellowships are: Cornell University, Ohio State University, Michigan State University, Kansas State College, and the Universities of Illinois, Minnesota, Tennessee, and Wisconsin. The plan is to make grants of $7000 to each institution, $1000 as a cost of education supplement to the institutions and $6000 to establish two $3000 fellowships, which will give the institutions the opportunity to grant either one-year fellowships to two candidates for master's degrees or a two-year fellowship to one candidate for a doctor's degree.

At the *New York State College of Home Economics*, Cornell University, Ithaca, the Katharine Wyckoff Harris Fellowship of $1500 for candidates for advanced degrees majoring or minoring in home economics fields will be awarded for the first time for the academic year of 1957–58. Preference will be given to a qualified candidate whose major interest is institution management. Further information may be obtained from the Graduate School, Cornell University, Ithaca, New York.

Harvard University School of Public Health is also offering scholarships for 1957–58 to post-graduate students in the field of public health or in one of the basic sciences related to public health. Among the categories listed as eligible for these scholarships are "dietitians with a college degree and satisfactory field experience," and "nutritionists." Awards will range from part tuition to tuition plus a stipend, according to the qualifications and financial needs of the applicants. Further details are obtainable from the Secretary of Admissions and Scholarships, Harvard School of Public Health, 55 Shattuck Street, Boston 15.

Continuation Course. Again this year, the University of Minnesota will offer a course in clinical dietetics as the Center for Continuation Study, Minneapolis, from February 28 to March 2. Current topics on dietary subjects will be discussed. Further information may be obtained from Dr. Robert B. Howard, Director, Department of Continuation Medical Education, 1342 Mayo Memorial, Minneapolis 14.

Symposium on Fats. On March 15, the Council on Foods and Nutrition of the A.M.A. will sponsor a symposium on "Fats in Human Nutrition" at Louisiana State University, New Orleans. Special emphasis will be on fats, cholesterol, and atherosclerosis, with the program planned especially for general practitioners and other physicians, nutritionists, educators, home economists, and others interested in nutrition. The program will be as follows:

"Dietary Fat—Its Role in Nutrition and Human Requirements"—Dr. L. Emmet Holt, Jr., Director, Department of Pediatrics, New York University School of Medicine

"Biochemical Aspects of Fat, Cholesterol, and Lipoprotein Metabolism of Importance in Clinical Medicine"—Dr. Donald S. Fredrickson, National Heart Institute, Bethesda, Maryland

"Pathologic Lesions Related to Disturbances of Fat and Cholesterol Metabolism in Man"—Dr. W. Stanley Hartroft, Department of Pathology, Washington University, St. Louis

"Epidemiological Studies of Diet, Blood Lipids, and Atherosclerosis"—Ancel B. Keys, Ph. D., University of Minnesota.

"Metabolic Studies of Relationships between Dietary Fat and Serum Lipid Levels"—Dr. Edward H. Ahrens, Jr., Rockefeller Institute Hospital, New York City

"Therapeutic Implications of Nutritional Studies Relating to Serum Lipids and Atherosclerosis"—Dr. Fredrick J. Stare, Head, Department of Nutrition, Harvard School of Public Health, Boston, and associates

Cooperating in presenting the symposium will be: the Orleans Parish Medical Society; the New Orleans Graduate Medical Assembly; School of Medicine, Louisiana State University, and Tulane University School of Nutrition.

School Lunch Report. In 1955–56 more than 10½ million school children participated in the National School Lunch Program—a record high. The number eating complete lunches with milk climbed to about 9.6 million, a 10 per cent gain over the previous year. Latest reports from the U.S.D.A. for September 1956 indicate that participation continues to increase, with 5 per cent more schools included in the program than in September 1955.

The Special Milk Program has also demonstrated its worth in forestalling accumulation of dairy surpluses by increasing milk consumption. During the 1955–56 school year, more than 62,000 schools took part in this program, a gain of over 50 per cent above 1954–55. A total of 1.4 billion half-pints of milk was consumed under the program, and latest figures (September 1956) show that the number of schools in the program has increased one-third over September 1955. Consumption of milk, too, increased—about 40 per cent.

Foods available for school lunches under surplus-removal plans during the last year have included: hamburger, eggs, turkeys, pork, lard, sweet potatoes, cabbage, and fresh plums. In addition, the following fruits and vegetables have been purchased by the government for the use of the school lunch program: green beans, tomatoes, tomato paste, corn, concentrated orange juice, peaches, purple plums, and grapefruit sections.

Honor for Miss Bulman. On December 2, 1956, in Philadelphia, Grace Bulman was one of sixty-five honorees at the Alumni Honors Assembly of Drexel Institute of Technology. Miss Bulman, who is Past-President of A.D.A., is Chief, Dietetic Service, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.

The following foods are expected to be in plentiful supply during February, according to a release from the U.S.D.A.:

Protein foods

Beef
Chickens—broilers and fryers
Eggs
Haddock, fillets
Milk and other dairy products
Perch, ocean

Other foods

Corn, canned sweet
Plums, canned purple
Potatoes
Prunes, dried
Rice

Army News. A grade structure expansion in the Army Medical Specialist Corps has resulted in the selection of two dietitians for promotion to the grade of lieutenant colonel: Hilda M. Lovett, Chief, Food Service Division, Walter Reed Army Hospital, Washington, D. C., and Eleanor L. Mitchell, Chief, Food Service Division, Fitzsimons Army Hospital, Denver. Both have served as Dietitian Section Chief, AMSC. This is the first time that the rank of lieutenant colonel has been granted to any AMSC office other than the Chief of one of the three sections. With Lt. Col. Helen M. Davis, the present Chief of the Dietitian Section,

Are you interested in a Low-Fat Breakfast?

In the dietary regimens recommended by nutrition and medical authorities for the purpose *of reducing fat in the diet* the importance of the morning meal is given full recognition. That a low-fat breakfast should be adequate not only in calories, but also in its content of essential nutrients, is advocated by medical as well as nutrition authorities.

The basic cereal breakfast pattern shown below *is low in fat and low in cholesterol* and makes a worth-while contribution of complete protein, essential B vitamins, and minerals. Thus it merits inclusion in dietary regimens for the purpose of reducing fat in the diet.

BASIC CEREAL LOW-FAT AND LOW-CHOLESTEROL BREAKFAST PATTERN

Orange juice, fresh, ½ cup, Cereal, 1 oz., with whole milk, ½ cup, and sugar, 1 tsp., Bread, white, 2 slices, with butter, 1 tsp., Milk, nonfat (skim), 1 cup, black coffee.

Nutritive Value of Basic Cereal Breakfast Pattern

Calories	502
Protein	20.5 gm.
Fat	11.6 gm.
Carbohydrate	80.7 gm.
Calcium	0.532 gm.
Iron	2.7 mg.
Vitamin A	600 I. U.
Thiamine	0.46 mg.
Riboflavin	0.80 mg.
Niacin	3.0 mg.
Ascorbic Acid	65.5 mg.
Cholesterol	32.9 mg.

Note: To further reduce fat and cholesterol use skim milk on cereal which reduces Fat Total to 7.0 gm. and Cholesterol Total to 16.8 mg. Preserves or honey as spread further reduces Fat and Cholesterol.

Bowes, A. deP., and Church, C. F.: Food Values of Portions Commonly Used. 8th ed. Philadelphia: A. deP. Bowes, 1956.
Cereal Institute, Inc.: The Nutritional Contribution of Breakfast Cereals. Chicago: Cereal Institute, Inc., 1956.
Hayes, O. B., and Rose, G. K.: A Supplementary Food Composition Table for Dietary Studies. J. Am. Dietet. A.: Jan. 1957.

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A research and educational endeavor devoted to the betterment of national nutrition

Custom Chicken Base

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There is ample reason why Custom Chicken Base stands supreme among all chicken bases. But, remarkable flavor and quality are not alone responsible.

Versatility of use is also extremely important.

Experienced restaurant operators as well as expert food technicians are constantly at work in Custom's experimental kitchen seeking *practical* (an essential word) new uses. And users of Custom Chicken Base are constantly kept advised of delicious, profitable, *new* recipes designed to enliven menus in all parts of the country.

Your Custom jobber salesman can show you many of these wonderful aids especially provided for Custom Chicken Base. Ask him for some today.

Custom FOOD PRODUCTS, INC.

701 N. Western Ave., Dept. JA-26, Chicago 12, Ill.

Chicken & Rice Soup

This is a soup of superb taste and richness. It is very easily prepared, low in cost, and quickly made. Has a high content of roasted chicken meat.

Yield—5 gallons

Cost—Less than 40c per gallon

Ingredients:

1 lb. Custom Chicken Base
5 gals. boiling water
1 lb. cooked rice (dry weight)

Method—

Simply mix Custom Chicken Base into the boiling water. Add 1 lb. of well-washed, flaky, cooked rice. Ready to serve immediately.

they now make up the three lieutenant colonels for the Dietitian Section. This new grade structure expansion in the AMSC is expected to provide added career incentives for Army dietitians.

It has also been announced that there were eight dietitians among the seventeen new majors nominated for AMSC promotions and eighteen dietitians in the list of forty-nine captains.

Air Force News. Dr. Margaret A. Ohlson, National Dietetic Consultant to the Surgeon General, U. S. Air Force, and the Air Force Command Consultant Dietitian, recently held a two-day conference in Washington, D. C. The conference summarized the progress of the "share-the-dietitian" program under the Command Consultants for the past two years. Representatives from four Commands attended.

The Air Force has also announced the promotion of several members of the Air Force Medical Specialist Corps, as follows:

Major to Lt. Colonel
Kathleen R. Creech

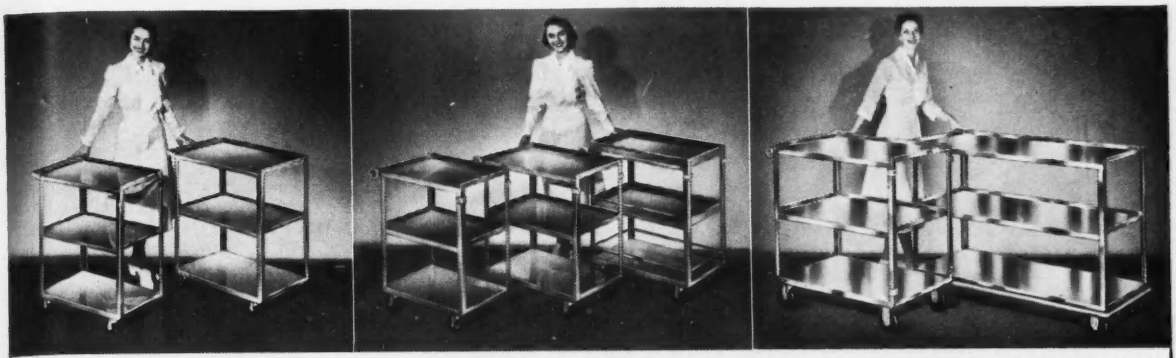
Captain to Major
Frances Gasson Ballentine
Julia R. Moynihan

1st Lieutenant to Captain
Shirley M. Chaska
Juanita A. Hyson

U.S.D.A.'s Four-Group Food Plan. *Essentials of an Adequate Diet—Facts for Nutrition Programs* is the U.S.D.A.'s new booklet by Louise Page and Esther F. Phipard describing the four-group food plan. Each of the four groups will contain foods planned to provide primarily for one nutrient, i.e., protein, calcium, vitamin A, and ascorbic acid. By choosing the recommended number and size of servings from the four groups, a diet will result which provides at least three-fourths of the daily allowance of these and other nutrients recommended for the average adult. However, these foods would supply only a little over half the needed calories, and the skeletal diet would need to be supplemented with other foods and servings.

The groups are: Group 1—the milk group; 2 or more cups of milk are needed daily by adults and larger amounts for children and pregnant and nursing women. Group 2—the meat group; 2 or more servings a day of meat, poultry, fish, or eggs, with dry beans and peas and nuts as alternates, are recommended. Group 3—vegetables; the quota for this group is 4 or more daily servings, including 1 helping of a dark-green or deep-yellow vegetable at least every other day, a citrus fruit or other good source of ascorbic acid daily, and other fruits and vegetables, including potatoes. Group 4—breads; 4 or more servings a day of whole-grain, enriched, or restored cereals or bread comprise the recommendation.

Use of a point system which the booklet explains will enable the menu-maker to plan a well balanced diet with comparative ease. Various foods are rated according to their contribution to the



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Model 422 (center) 17½ x 27" shelves.....$55.50
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KING-SIZE UTILITY TRUCKS

Model 444 (left) 21 x 35" reinforced shelves.....$98.25
Model 459 (right) 21 x 50" reinforced shelves.....$129.00
Channel Bumper shown, extra

Famous LAKESIDE Stainless Steel Utility Carts – Tray Trucks – Pans

...USED ONLY MINUTES A DAY...THEY PAY THEIR WAY!

NOW 9 STYLES OF TRAY TRUCKS

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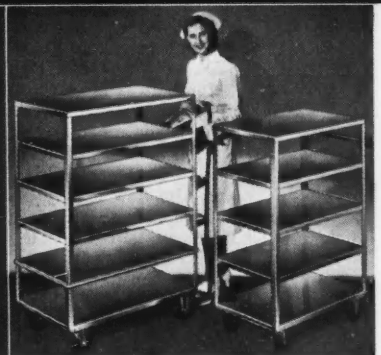

Model 351 3 shelves 18 x 31" (Height 37⅛")	$ 76.75
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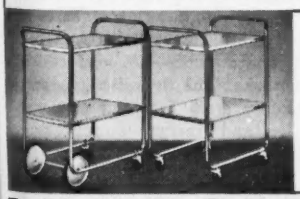
Model 445 4 shelves 21 x 35" (Height 45½")	114.25
Model 433 6 shelves 21 x 35" (Height 50¼")	131.00
Model 449 8 shelves 21 x 35" (Height 54¼")	165.00
Model 460 4 shelves 21 x 50" (Height 45½")	162.00
Model 462 6 shelves 21 x 50" (Height 50¼")	204.50
Model 464 8 shelves 21 x 50" (Height 54¼")	250.00

Shelves have all edges folded down. Also available with 3 edges up, 1 down on all shelves. 5" caster wheels and bumpers on all models. See your dealer for optional caster and bumper equipment.



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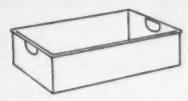
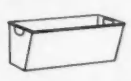
Model 655 (left) 15½ x 24" shelves with 2 casters, 2 8" wheels.....$28.00
Model 688 (right) 15½ x 24" shelves.....$25.75
Models shipped KD



UTILITY PANS

Model 111 . . . for 311, 411, 444, 459, 655, 688 carts. 21 x 14½ x 5".....$12.25
Model 122 for 322, 422, 526 carts. 24 x 16½ x 5".....$14.25



COUNTER PAN

Model 115 . . . 21½" long, 11⅜" wide at top, 8⅜" high.....$13.50

GARBAGE CAN DOLLY

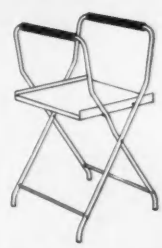
Model 475 . . . 19⅜" diameter, four 3" ball-bearing swivel casters.....$11.25

PLATFORM TRUCK

Model 450 . . . 20 x 20", four 4" swivel casters, 400 lb. capacity $30.50

WASTE BOXES

Model 131 . . . for 311, 411 carts. 14⅜ x 12 x 5⅛".....$12.25
Model 132 for 322, 422, 526 carts. 16¾ x 12 x 5⅛".....$13.00
Model 133 . . . for 444, 459 trucks. 20⅛ x 12 x 5⅛"..$14.50



TRAY STAND

Model 677 . . . Folding stand with 16¼ x 17" shelf.....$17.75

UTILITY BOXES

Model 141 . . . for 311, 411 carts. 14⅜ x 6 x 5⅛".....$9.25
Model 142 for 322, 422, 526 carts. 16¾ x 6 x 5⅛".....$10.25
Model 143 . . . for 444, 459 trucks. 20⅛ x 6 x 5⅛".....$11.25

LAKESIDE STAINLESS STEEL PRODUCTS

- Clean instantly, stay gleaming bright.
- Have NOISE PROOF treated shelves.
- RUGGED DESIGN gives years of service and satisfaction.

NEW! "Design-It-Yourself" Carts and Trucks . . . Made-to-Order in 5 Sizes

You specify size, style, and number of shelves . . . bumper equipment . . . casters . . . and your LAKESIDE Carts and Trucks are custom-made for you. Ask your dealer for full details!

Prices FOB Milwaukee, *slightly higher in West. Subject to change.*

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Sanitation that Pays for itself

fmc JET DISPOSER

The modern space and labor saving way to dispose of kitchen food waste. The JET easily handles bones, corn cobs, celery, milk cartons, paper napkins . . . even rags and string. Exclusive principle of design breaks, pulverizes, liquefies all food waste. Power requirements and maintenance costs reduced to a minimum. Write for data and testimonial brochure.

Automation equipment for kitchens

Kitchen Equipment Department
FOOD MACHINERY AND CHEMICAL CORPORATION
General Sales Offices: P. O. Box 1120 San Jose 8, California; 6 N. Michigan Chicago 2, Illinois; 103 E. Maple Street Hoopeston, Illinois

key nutrient. For example, 2 oz. cooked lean meat score 10 points for protein; one egg, 4 points. In a similar way, foods in the other three groups are point-rated. The daily minimum as recommended would be 20 points from each food group.

Single copies of this publication, which is Agriculture Information Bulletin No. 160, may be obtained on request from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

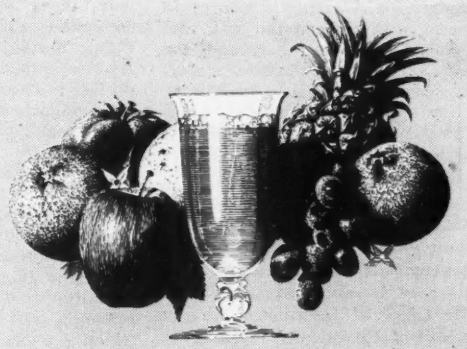
U.S.D.A. Publications. "Changing Patterns in Fluid Milk Distribution" is the title of the U.S.D.A.'s Marketing Research Report No. 135 by Helen V. Smith and Louis F. Herrmann. According to this report, homogenized milk is continuing to gain in popularity, as are special flavor milk drinks and milks identified by origin (Guernsey, Jersey, and so on), which add variety for the consumer. More milk is still sold in glass containers than in paper, but in each city studied, the proportions were changing as paper containers became increasingly available. Door-to-door delivery is also losing out to purchases at the grocery store. The quart container, though still the most widely used, is being used less than in the past while milk in ½-gal. and 1-gal. containers is being bought more.

This report has been followed up with a consumer leaflet, "Facts About Pasteurization of Milk," which explains how milk is pasteurized commercially and also how it may be done at home. Information to answer mistaken beliefs about pasteurization is presented. This is U.S.D.A. Leaflet 408.

A second new U.S.D.A. consumer release is PA No. 299, "Poultry Inspection, a Consumer's Safeguard," which explains concisely and simply the facts about the government's voluntary inspection service for poultry. It contains illustrations of the inspection marks, along with an explanation of their significance, and tells where they may be found on poultry and poultry products. It also includes tips on amounts of poultry to buy per serving and other pointers on purchasing and using poultry.

A fourth new publication from the U.S.D.A. is a four-page folder describing the energy-saving kitchen which has been designed by Beltsville housing specialists especially for homemakers who must conserve energy because of chronic illness or age. (Able-bodied housewives may also want to incorporate some of the designs and equipment arrangements to save time and energy.) This is the first in a series of kitchen designs based on research into energy costs and space needs for performing household tasks. The floor layout indicates adequate areas for food preparation, service, and storage, laundry, and home office work in a room about 18 ft. square. The oven is installed so that the lowest shelf is about counter level, and storage units and refrigerator are placed so that the homemaker need not reach higher than 63 in. or lower than 27 in.

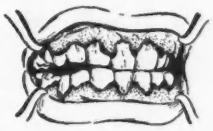
WHY SHOULD THE VITAMIN C CONTENT OF FRUIT AND VEGETABLE JUICES BE STANDARDIZED?



Because nutrition reports disclose that—

- **Vitamin C deficiencies exist throughout the country***
- **Scurvy has not disappeared from the United States***

Proof of deficiencies among adults and children. You should know these facts!* Diet surveys from Maine and Vermont, New York, Illinois, New Mexico, Oregon, West Virginia, and Texas show a definite pattern of inadequate vitamin C intake. These studies covered grade school and high school children, college men and women.



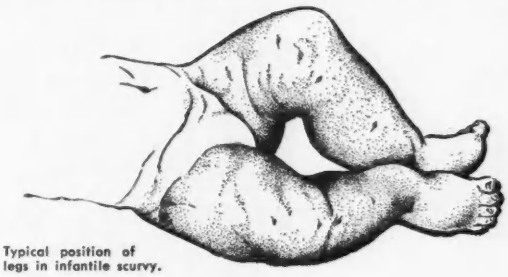
Spongy, swollen gums symptomatic of scurvy.

From these studies* of dietary habits and physical conditions there is considerable proof that many of the children and adults covered by survey have actual, physical symptoms of vitamin C deficiency.

Infantile scurvy. Scurvy* occurs, even today, among infants who are artificially fed. Fortunately the disease may be cured by the administration of vitamin C. How much more sensible it is to prevent it by supplying these bottle-fed infants with the daily allowance of 30 milligrams of vitamin C as recommended by the Food and Nutrition Board of the National Research Council for children under one year of age.

Symptoms of infantile scurvy are fretfulness and fear of being touched.

These bottle-fed infants, unless receiving a pediatric prescription containing vitamin C, are largely dependent on supplemental ascorbic acid which they receive from fruit or vegetable juices. Unless fortified with vitamin C many of the processed juices may not supply these babies with adequate quantities of this essential element.



Typical position of legs in infantile scurvy.

What can be done? Because of the increasing evidence that American diets are deficient in vitamin C, leading nutrition experts believe that processed fruit and vegetable juices, on which the public is so reliant for its supply of this necessary vitamin, should contain the "Vital Ingredient."

The Vital Ingredient of any processed fruit or vegetable juice is a *dependable* and *adequate* supply of vitamin C. You can give your juice this ingredient by *standardizing its vitamin C content*. The processing is simple and the new low cost of ascorbic acid makes juice standardization more attractive than ever.

With ascorbic acid available *by the tons* at extremely modest cost fruit and vegetable juices can have a standardized vitamin C content for the better protection of the nation's health and well-being.

*Statements are based on documented reports. References on request.

Illustrations after photographs in The Vitamins in Medicine by Bicknell and Prescott, Third Edition, published by Grune & Stratton, Inc., New York.

ROCHE Pure, crystalline VITAMIN C
(Ascorbic acid, U. S. P.)

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In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec

from the floor for items used in everyday food preparation. Walking is reduced to a minimum, with mix counter, sink, and range placed close together, and the refrigerator across from the mix counter. Storage space is provided at each work center for supplies and utensils used there. The shallow bowl of the double sink, with drain set well back of center and an open space under the mix counter, allows plenty of knee room so that the homemaker can sit comfortably while performing long jobs.

Single copies of all of the above publications may be obtained on request from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Other Government Releases. To help those planning and conducting community diabetes programs, the U.S. Public Service has released a booklet, *Diabetes Program Guide*, in which is reported the experience of a number of communities, combined with the results of original investigations of the P.H.S. designed to develop standards and techniques. The *Guide* has been organized to deal with the major elements of a diabetes program, beginning with community resources and proceeding through primary and secondary prevention to finding and serving the patient with diabetes. Education, evaluation, research, and records are also topics which are considered. This booklet is Public Health Service Publication No. 506. Copies may be purchased for 45 cents each from the Government Printing Office, Washington 25, D. C.

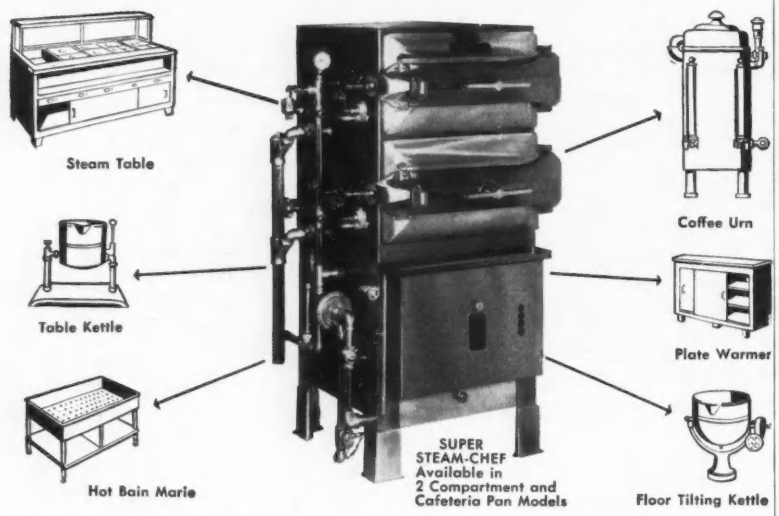
The first of a series of staff studies on the problems of the aging and the aged has been released by the Committee on Labor & Public Welfare of the United States Senate. This first volume is a compilation of reports on activities of the individual states and the federal government in behalf of older people and includes reports on the 1952 Conference of State Commissions on Aging and Federal Agencies, the 1956 Federal State Conference on Aging, and a description of activities relating to aging in the various federal agencies and departments. Subsequent studies will deal with older people's health, income, employment, and rehabilitation. Requests for copies should be directed to the Committee in Washington, D. C.

Williams-Waterman History. Dr. Robert R. Williams has written the history of his work with Williams-Waterman Fund of Research Corporation. In it, he details the research which resulted in the isolation of thiamine and which preceded the founding of the Fund. He also recounts the contributions of the Fund to the advance of science, through the offering of grants, demonstration projects in corn enrichment, and educational projects. The problem of cereal enrichment in the U.S., and the synthesis of thiamine are discussed, as is the extension of enrichment to other continents, especially the rice enrichment experiment on the Bataan Peninsula in the Philippines. A final chapter deals with kwashiorkor and the future. The book, titled *Williams-Waterman Fund for the Combat of Dietary Diseases*, is copyrighted and distributed by Research Corporation, 405 Lexington Avenue, New York 17.

Films and Filmstrips. From the Community Council of Greater New York comes a new mimeographed pamphlet, "Approved Films and Filmstrips on Food and Nutrition, 1954–56," which is the annual supplement to the original publication on the same subject published in 1948. It is a compilation of brief summaries and evaluations of films and filmstrips and contains information on the producers and distributors of the films, costs, length of time needed to show the film, and the audiences for which they are prepared. The compilation is prepared by the Council's Committee on Evaluation of Food and Nutrition Films. Copies are available on request from the Council's offices at 44 East 23rd Street, New York 10.

Joint Conference on Children and Youth. Some two hundred representatives of State Committees on Children and Youth, national voluntary organizations, and federal agencies met in Washington, December 3 and 4. The conference had three main themes: (a) family life, which was developed in a talk by Dr. Martha M. Eliot, Chief, Children's Bureau, in the keynote speech; (b) today's youth, which was considered by Evelyn Johns Rich, Inter-

Now, operate Extra Steam Equipment with the all-new Super Steam-Chef!



Super Steam-Chef Really Puts Steam to Work!

With New SUPER STEAM-CHEF, kitchens can now take full advantage of steam cooking! A simple connection direct from the heavy-duty SUPER STEAM-CHEF generator enables any kitchen to operate either an urn, hot-table, kettle, proof oven, warmer, or any other steam appliance in addition to the steam cooker.

Unlike bulky combination units, the SUPER STEAM-CHEF features a heat pack generator that permits positioning of steam appliances close to, or away from the Super Steam Generator. Frequently it is possible to connect more than one additional appliance to the SUPER STEAM-CHEF and obtain excellent results. Detailed information will be gladly furnished.

Write for complete facts and specifications on how SUPER STEAM-CHEF can *really* put steam to work in your kitchen.

For 10 consecutive years, Steam-Chef and Steamcraft have been the overwhelming choice in award-winning kitchens in the annual "INSTITUTIONS" Food Service Contest.

THE CLEVELAND RANGE COMPANY

"The Steamer People"

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Meat...

and the Need for Reasonable Amounts of Fat to Maintain Good Health

The place of dietary fat in human nutrition is being widely discussed. Scientists who know tell us that some fat is desirable in our everyday diet whether body weight has to be reduced or not.

Why are fats important to good health? Because they contribute to the processes of growth and replacement of tissue. Because they are an important source of calories. Because they make foods more inviting and better tasting.

Despite great advances in nutritional knowledge the exact role of fat in the diet is not yet fully defined. Yet it is known that some fat is necessary in healthful day-to-day nutrition.

For good health, good nutrition, and tastier meals, be sure there is some fat—in reasonable amounts—in your daily diet. Meat—the most versatile of high protein and B vitamin foods—because of its many varieties and cuts is an excellent vehicle to provide this essential fat in any amount desired. Animal fat products, such as lard, are not only economical, but add delightfully to the taste appeal of hundreds of recipes.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute

Main Office, Chicago... Members Throughout the United States

national Affairs Office, Young Adult Council; and (c) the future. This conference was jointly sponsored by the National Advisory Council on State and Local Action for Children and Youth, Council of National Organizations, and Federal Interdepartmental Committee on Children and Youth. All three organizations were unanimous in their feeling that they should take an active part in planning for the 1960 White House Conference on Children and Youth, if such a conference is called by the President of the United States. The plea was made by Margaret Price, Michigan Youth Commission, that planning for the 1960 Conference concentrate on "the whole child."

American Public Health Association. Officers for 1956–57 elected at the 84th Annual Meeting of the American Public Health Association in Atlantic City in November are: President, John W. Knutson, D. D. S., Assistant Surgeon General and Chief Dental Officer, Public Health Service, Washington, D. C.; President-Elect, Roy J. Morton, C. E., Supervisor, Waste Disposal Unit, Health Physics Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee; Chairman of the Executive Board, Lawrence J. Peterson, M.S.P.H., Director of Health, Idaho Department of Health, Boise; and Treasurer, Charles Glen King, Ph. D., Scientific Director, Nutrition Foundation, Inc., New York City.

The 85th Annual Meeting of A.P.H.A. will be held in Cleveland, November 11 to 15, 1957.

Clarification. The report, "Tools for Evaluating the Hospital Department of Dietetics," published in the October issue of the JOURNAL, is a report of a committee of The American Dietetic Association. Although the committee members had the benefit of the thinking of the Joint Committee of the American Hospital Association—American Dietetic Association, this is a report of The American Dietetic Association and should not be construed as having the approval of the American Hospital Association.

Honey as a Cooking Ingredient. To aid in the expansion of use of honey in commercial bakery products, research at Kansas State College, Manhattan, has indicated that honey can be incorporated into baked goods with pleasing results. A method has been developed using honey alone to sweeten cakes. The resulting products stay moist and fresh-tasting longer than do cakes made without honey. However, if more than a third of the sugar is replaced with honey, simple substitution sometimes causes difficulty, because the acids of the honey react with baking powder as the batter is mixed, leading to low cake volume. An intense browning reaction during baking may also occur, resulting in a burned color and flavor, and extra soda cannot be added to increase cake volume because it hastens browning. Researchers found that this browning reaction can be controlled by raising the acidity of the cake batter in the final stages of baking. To do this, they used potassium bitartrate coated with a stearate, which melts and releases the acid near the end of the baking time.

With cookies, honey added noticeably to the flavor and color. Because it gives a chewing quality, however, only enough to replace 5 per cent of the sugar was used in crisp cookies, but even this small amount added to the flavor of sugar cookies and vanilla wafers. In chewy cookies, such as fruit bars and brownies, honey replaced over half of the sugar.

In bread-making, honey was substituted for 6 per cent of the sugar in white breads and up to 12 per cent in dark breads without altering the process.

Honeys from various flower sources differ in moisture content, color, flavor, acidity, and sugar composition. However, with fifteen types, only the differences in flavor and color affected the baked goods.

Restaurant Statistics. At least 20 per cent of the money spent on food in the U. S. now goes to the restaurant industry, according to the Department of Agriculture. And, if the population grows as expected and if the pattern of "eating out" continues, the number of meals purchased away from home should increase 75 per cent by 1975.

A U.S.D.A. survey of the use of frozen foods in restaurants recently indicated that by 1975 demands from restau-

NEW J&J

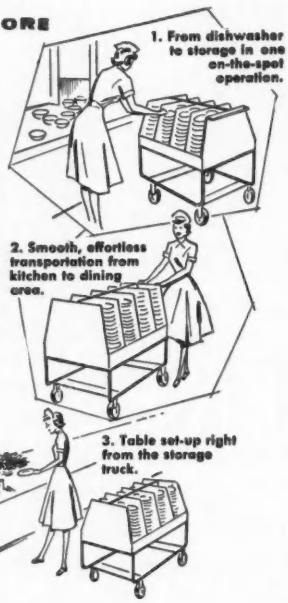
CLEAN DISH STORAGE TRUCKS

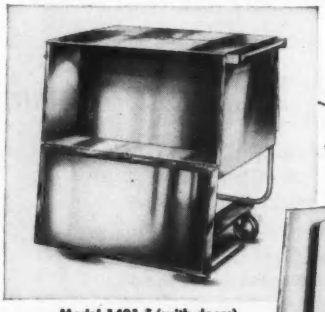
The fast, easy efficient way

TO HANDLE, TRANSPORT AND STORE CLEAN DISHES

These new J & J units pay off handsomely in hotels, colleges and institutions where separate banquet rooms or dining rooms (apart from main dining areas) require dish services of their own. Good examples might be the staff dining room in a large hospital or a special banquet hall in a hotel. In such cases, the J & J Model 1400 stores the clean dishes right on the spot, ready for the next set-up. From dishwashing machines to storage, to table set-up is one smooth, effortless operation with J & J quality dish trucks. Units pay for themselves within a few short months of regular service. Why not cut your time and labor costs today . . . Write J & J.

Nationally Distributed Through Quality Dealers


1. From dishwasher to storage in one on-the-spot operation.
2. Smooth, effortless transportation from kitchen to dining area.
3. Table set-up right from the storage truck.



Model 1401-S (with doors) Heavy duty, stainless steel, mounted on two J & J 5" double ball-bearing swivel casters and two 5" rigid casters. Unit above shown without dividers.

Model 1400-S (less doors) Removable dividers simplify orderly dish storage. Distance between dividers must be specified.

Specifications

Overall width . . . . . 27½"
Overall length . . . . . 37¾"
Overall height . . . . . 37½"
Shelf size (per side) 10½"x32¼"

Also furnished with continuous rubber bumper.

Sales Representatives In Leading Cities Throughout The Country.

Jarvis AND Jarvis, Inc.
PALMER, MASSACHUSETTS

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Dynamic NEW *Series* M

Puts a complete FOOD HANDLING SYSTEM right in the palm of your hand!

Not just a unit . . . but a complete food handling system. Koch Series M is a flexible, functional reach-in refrigerator that steps up service and cuts down overhead. It's designed as a compact, efficient, time-saving system so necessary in today's modern kitchens.

See it perform... Watch it pay off!

- **PRE-PREPARATION** — generous storage facilities hold salads, etc., prepared in slack periods.
- **BULK HANDLING**—Mobile equipment saves steps, holds 100 dishes, slips entire unit in and out of refrigerators.
- **CONTAINER CONTINUITY**—Accommodates all pan sizes . . . eliminates the transfer of foods.
- **PORTION CONTROL** items—pans, trays, cartons, fit easily thereby carrying control into refrigerator.

In 1, 2, 3, or 4 section widths; 34" or 26" depths; medium or low temperature; porcelain or stainless steel; front opening or pass-through; remote or self contained.

WRITE FOR COMPLETE PORTFOLIO OF DESCRIPTIVE MATERIAL

SINCE 1883 KOCH refrigerators, inc. KANSAS CITY 15, KANSAS

rants will boost the frozen vegetable pack 14 per cent and the frozen fruit pack 4 per cent. Restaurants are using a much greater proportion of frozen foods today than a few years ago, especially larger establishments and those serving more expensive meals. The survey showed that 31 per cent of vegetables used by restaurants are frozen; 38 per cent are canned; and 31 per cent fresh. For fruits, purchases were about equally divided among frozen, fresh, and canned. About 71 per cent of the orange juice now served in restaurants is from the frozen product; only 23 per cent is squeezed from fresh oranges, and 6 per cent is canned juice. Restaurants purchase two-thirds of their turkeys frozen, but most of their chickens and other meat fresh.

Chicken Consumption. Over 90 per cent of all homemakers interviewed in a U.S.D.A. survey served broilers or fryers during the last year, and about half of these users served them once or more a week. Preliminary findings of the survey conducted in June and July 1956 indicate that almost all users of broilers or fryers had served them fried, and one-third of them had served them only as fried chicken. About 40 per cent had also baked or roasted this type of chicken during the year, about 25 per cent had broiled them, and about 17 per cent had barbecued them.

Estimates of the U.S.D.A. for 1956 show that consumption of broilers in 1956 reached about 16 lb. per person. Use of this type of poultry has almost doubled since 1950, while per capita consumption of all chickens has risen only about 3 lb. (15 per cent). About half of the respondents in this survey had bought stewing chicken during the year, but slightly less than half had purchased roasting chicken. About 50 per cent had served frozen poultry pies or frozen poultry dinners in the preceding year.

Poultry in other forms is served by fewer homemakers. Although two-thirds served turkey during the preceding twelve months, it was served mainly only one to three times during the year. Only about one in ten had bought duck.

Cost of Food. Eight cents of every dollar spent by consumers in 1955 for food went for transportation, according to a U.S.D.A. report. In 1945, the figure was less than 6 cents. The proportion of the food dollar that goes for transportation varies, of course, from one kind of food to another, and from place to place, and with the distance involved. Lettuce shipped from Arizona in June 1955, for example, cost 23⅓ cents per retail dollar for transportation to Chicago and 33 cents to New York.

As the retail price of a commodity goes down, it has been shown that the hauler's share of the food dollar increases. For meat products from a hog raised in Iowa shipped to New York in 1955, transportation cost 5.1 cents of each dollar of retail value of the pork. In 1945, the cost would have been 3.8 cents. This increase in proportion was due entirely to the slump in the retail price in 1955.

A report, "Food Transportation and What It Costs Us," has been released by the U.S.D.A. as Miscellaneous Publication No. 738. Single copies may be obtained from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Shelling and Storing Pecans. Since this year's crop of pecans is well above average, instructions for shelling the nuts to get out unbroken half-kernels and for storage from the Georgia Experiment Station are of interest. For easy, speedy shelling, the nuts should first be moistened. Spread them between several layers of damp toweling and leave them overnight; or, moisten them under steam pressure. To do this, place enough water in the pressure cooker to cover the rack in the bottom, fill with pecans, steam under 5 lb. pressure for 10 min. Shell within 24 hr., so that the nuts will still be limp enough to crack and handle without crumbling.

To crack, apply pressure at both ends of the shell, not at the sides. After cracking, you may be able to remove the shells by hand, or a paring knife or other sharp tool may be needed. One person should be able to shell 8 to 10 lb. an hour.

Crispness may be restored by drying the meats on a screen in the sunshine for a day or by spreading them on a rack in a warm oven (200°F.) for 2 hr. with the oven door half open.

Pecans, like other nuts, keep better in the shell, but the "meats" require only half the storage space and are convenient for immediate use. The colder the better for keeping pecan meats fresh. Tests showed that at room temperature (70° to

With Salvajector, you do all four of these otherwise time-killing jobs simply by passing soiled tableware through a 107° gusher of re-circulating water.

Salvajector COMBINES what the National Sanitation Foundation calls the "best known method of preparing tableware for washing," with quick, trouble-free food disposal.

And, your new model Salvajector is easier to install, easier to maintain, *lower in cost!* Get the facts today. See how Salvajector stops the loss of silver and small tableware. See also how Salvajector's new non-clogging food disposer shreds food waste into a free-flowing liquid faster and more efficiently than ever.

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CONTROL YOUR FOOD COSTS...

AU GRATIN or SHIRRED EGG DISH

SERVE UNIFORM PORTIONS *in*

HALL
Secret Process
FIREPROOF CHINA
AVAILABLE IN 26 BEAUTIFUL COLORS

Hall Baking Dishes make portion control automatic. The capacity of the dish assures uniform servings of the desired size — no need to depend upon the server's skill. Hall ware also gives the chef an opportunity to prepare economical recipes which make profitable menu attractions. Write for Bulletin SM-1.

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The World's Largest Manufacturer of Fireproof Cooking China

HANDLED COCOTTE
FLUTED BAKING DISH
BOSTON BAKER
PUDDING PAN

AN ADDED SECRET TO THE SECRET PROCESS
HALL CHINA METAL-CLAD... by PLATECRAFT®
Secret Process **HALL CHINA** plated with lustrous nickel-chrome by a secret process.
Write for Bulletin MC-65

H-9

80°F.) pecan meats kept fresh only two months; in the home refrigerator (38° to 40°F.), they may be held nine months; and in the home freezer at 0°F., they will be in good condition for two years. The high oil content makes them very perishable, and they are subject to rancidity when exposed to air and warmth. Because they easily absorb flavors from other foods or from some types of containers, the Georgia Station recommends the following containers in order of preference: glass jars and lids sealed with plastic gaskets; plastic cartons with tightly fitted lids; tin cans with slipover lids; odorless, moisture-proof, flexible bags with tops twisted and securely wrapped with rubber bands. All of these containers are re-usable.

More Goes for Food as Standard of Living Rises. Even better family living in 1957 is in prospect, according to Gertrude Weiss, Chief, U.S.D.A.'s Household Economics Research Branch. Families today are not only spending more, but they have been spending differently from 1948 patterns. Most striking rise in family spending has been in the purchase and operation of automobiles, but spending for food and housing has also risen since 1948.

One reason families spend more for food is that they have shifted to more expensive foods and are eating out more. Families use more meat, poultry, and fish; more frozen fruits and vegetables; less potatoes; and less fruits and vegetables in canned, dried, and fresh form. Farm families also have been spending more for food, because they are buying more and producing less, and they also have been eating out. However, the proportion of home-produced food in the farm family supply, though down, is still substantial.

Instant Coffee. Brewed coffee consumption compared with instant coffee in the U. S. is now in a proportion of seven or eight to one, and the current popularity of instant coffee has recently made us Africa's best coffee customer.

Instant coffee can be made by blending Robusta coffees grown in Africa with the more expensive, mild, full-flavored Aribica coffee grown in Latin America. Countries producing the most Robusta coffee are: Uganda, the Belgian Congo, Angola, French West Africa, and Tanganyika. In 1955, the U. S. more than doubled its coffee imports from Uganda, taking from $17.2 million worth of that country's $56.3 million total coffee exports. An even more spectacular increase occurred in the Belgian Congo, where coffee exports to the U. S. jumped from more than 27 million lb. in 1953 to more than 50½ million lb. in 1955.

A price drop for Latin American coffees might mean less demand for soluble coffee, or the level of present consumption would hold, rather than continue to rise.

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News of State Associations

Alabama Dietetic Association. The JOURNAL office has been informed that the meeting of the Alabama Dietetic Association was held in Birmingham on November 2 and 3, rather than in October as reported in the January issue of the JOURNAL.

Arizona Dietetic Association. November 16 and 17 were the dates of the fall meeting of the Arizona Dietetic Association meeting held in Phoenix. The program featured two panel discussions—one on feeding mental patients, with a physician, nurse, dietitian, and social worker as participants; the other, on food administration. Other talks included:

"Sweet Talk"—Phyllis A. Kuckuck, Consumer Service Department, Western Beet Sugar Producers, Inc.
"What's New in Nutrition Research"—Ethel M. Thompson, Ph. D.

Arizona officers for 1956–57 are: President, Betty Fry Neal, Arizona Public Service Company, Phoenix; President-Elect, Virginia L. Felch, Good Samaritan Hospital, Phoenix; Secretary, Gloria D. Hill, Good Samaritan Hospital; and Treasurer, Martha E. Pollard, Arizona Board of Health, Phoenix.

California Dietetic Association. In an effort to promote all-member participation, the *Los Angeles Region* of the California Dietetic Association in November sponsored a series of "area" meetings, so that all members could attend at least one meeting. Meetings were held in Pasadena, Hondo (for the harbor area), Santa Monica (for West Los

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Angeles (for central Los Angeles), North Hollywood (for the San Fernando Valley), and in Duarte (for the inland valley). Programs for each of the meetings were different, with the subjects or activities ranging from a discussion of school lunch to tours of kitchens.

Florida Dietetic Association. On November 30, an Institute on Principles of Administration was sponsored by the Miami Dietetic Association. It was a 6-hr. course conducted by Dr. Joan Coleman, Director, Institutional Administration, Florida State University, Tallahassee. Dietitians from the Dade and Broward County hospitals attended, as well as several from commercial establishments and school lunchrooms.

Hawaii Dietetic Association. The first session of a 33-hr. work simplification workshop, sponsored by the Food Administration Section of the Hawaii Dietetic Association, was held on January 7. Instructor for the course is Edward Klemm, Industrial Relations Department, Libby, McNeill, and Libby. The course will cover the human aspects of work simplification, the five-step patterns and its aids, and practical problem-solving.

Officers of the Hawaii Dietetic Association are: President, Virginia Cooksey, Wahiawa; President-Elect, Juliet Tong, Kaneohe; Secretary, Jane Arakaki, Honolulu; and Treasurer, Yoko Yamauchi, Honolulu.

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Iowa Dietetic Association. The fall meeting of the Iowa Dietetic Association was held in Iowa City on November 15. The program was:

"Training Food Service Workers in Work Simplification" — Marjorie McKinley, Iowa State College, Ames
"Research in Action—The Kansas City Studies"—Dr. Floy Eugenia Whitehead, State University of Iowa, Iowa City
"Human Pantothenic Acid Studies"—Dr. William B. Bean, State University of Iowa, Iowa City.

Officers for the Iowa Association for 1956–57 are: President, Margaret Osborn, Iowa City; President-Elect, Doris Hittle, Ames; Secretary, Rosetta Cerny, Cedar Rapids; and Treasurer, Ruth Vawter, Des Moines.

Louisiana Dietetic Association. In November, dietitians in Lafayette organized a local association which will meet monthly. This year the group will emphasize as its project the role of the dietitian in civil defense. Officers are: President, Ruth Dickinson Reams, and Secretary-Treasurer, Justine Graham.

Kansas Dietetic Association. El Dorado was the scene of the fall meeting of the Kansas Dietetic Association. Reports of the A.D.A. meeting were given, while feature speaker of the day was Charles R. Boyle, President, Lee Foods, who spoke on "Latest Trends in Food Processing."

Officers of the Kansas Dietetic Association are: President, Arlene Payne, University of Kansas Medical Center; President-Elect, Grace Shugart, Kansas State College, Manhattan; Secretary, Kathleen Shea, Dairy Council, Wichita; and Treasurer, Velna Worth, VA Hospital, Topeka.

At its October meeting, the *Greater Kansas City Dietetic Association* enjoyed a vicarious gastronomic tour of the world when members heard about the foods of China, Costa Rica, India, and Iran from: Mabel Cheng, Isabel Moya, Pratima Vedi, and Hoori Besharat, respectively. The speakers also prepared refreshments which included one dish that was common in each of their countries . . . Officers of the Greater Kansas City Association are: President, Elizabeth McCune; President-Elect, Louise Frolich; Secretary, Catherine Rudolph; and Treasurer, Florence Costello.

Thirty-three members are participating in the activities of the *Wichita Dietetic Association* this year. The membership includes representatives from the following fields: hospital and clinic, school food service, community nutrition, commercial feeding, teaching, and homemaking. Officers are: President, Alice Johansen; President-Elect, Sister Martina Fehringer; and Treasurer, Maureen Ummel.

Michigan Dietetic Association. Theme of the fall meeting of the Michigan Dietetic Association held in Battle Creek on November 2 was "The Dietitian in Civil Defense." Four speakers

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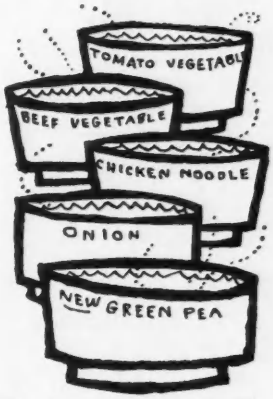

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Pope's patrons love Lipton Soup . . . many serve it at home. And how thrifty to serve . . . at a food cost of only 2½¢ a bowl. We hope, like Pope, you'll discover Lipton Soup Mixes, and . . .

Try the other great Lipton products, too. Brisk Lipton Tea, (America's favorite!) and famous Lipton Flavor Boosters.

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from the federal Civil Defense headquarters outlined the great need for trained workers in feeding and caring for mass groups pending emergencies. Dorothy Bovee, Food and Nutrition Consultant, American National Red Cross, Washington, also spoke about the new emergency feeding manual which will be released soon for an instructors' course. Lawrence L. Taylor, Hillsdale College, discussed "Workshop Techniques" and demonstrated these techniques in dealing with the topic, "The Responsibility of the Dietitian in Civil Defense."

Officers of the Michigan Dietetic Association are: President, Myrtle Van Horne, Michigan Department of Health, Lansing; President-Elect, Regina Frisbie, Kellogg Company, Battle Creek; Secretary, Katherine Claus, Coldwater High School, Coldwater; and Treasurer, Virginia Kopec, Henry Ford Hospital, Detroit.

Minnesota Dietetic Association. On November 8, the Minnesota Dietetic Association met in Rochester. The program included:

"The Use of Oral Hypoglycemic Agents in Treatment of Diabetes"—L. O. Underdahl, M.D., Mayo Clinic, Rochester

"New Developments in the Surveying of Patient Care Services"—Ruth Stief, Nutritionist, Minnesota Department of Health, and Adeline Paulson, Chief Dietitian, VA Hospital, Minneapolis

Officers of the Minnesota Dietetic Association are: President, Sister M. Bernadette, College of St. Teresa, Winona; President-Elect, Catherine Reinheimer, Midway Hospital, St. Paul; Secretary, Ruth Franklin, Mayo Clinic, Rochester; and Treasurer, Juliette Vernet, Minneapolis.

On January 10 and 11, the Minnesota Dietetic Association, in cooperation with the Minnesota League of Nursing and the Minnesota Department of Health, sponsored a two-day workshop on nutrition education for student nurses. The workshop was held at the University of Minnesota's Center for Continuation Study in Minneapolis. Outstanding leaders from both the nursing and dietetic professions took part in the conference, with Dr. Henderika J. Rynbergen, Associate Professor of Science, Cornell University, as the chief coordinator. Attendance included faculty members of schools of nursing, dietitians, and others concerned with teaching of nutrition in the basic nursing curriculum.

Montana Dietetic Association. October 26 and 27 were the dates of the 12th Annual Convention of the Montana Dietetic Association held in Bozeman. The program included:

"The Place of Dietetics in the Operation of a VA Hospital"—Edwin R. VanSickle, VA Center, Fort Harrison, Montana

"Our Approach to Dental Health in Montana"—Dr. Allan T. Willis, Director, Division of Dental Health, Montana Board of Health

"Food Fads"—Dr. Gladys Roehm, Montana State College, Bozeman, and Zelda Davies, Home Service Director, Montana Power Company, Bozeman

Officers of the Montana Association are: President, Dr. Gladys Roehm, Montana State College, Bozeman; President-Elect, Ruth Ann Boyd, Billings; Secretary, Marie Sopp, Billings; and Treasurer, Doris Dickinson, Butte.

New Jersey Dietetic Association. On January 14, the *Southern Jersey Dietetic Association* met in Princeton to hear Dr. Sussman, State Department of Health, speak on animal diseases transferable to man through food. At its February meeting, the group saw a film on cooking with electronics.

North Carolina Dietetic Association. "Keys to Success" was the theme of the annual fall meeting of the North Carolina Dietetic Association held in Charlotte, October 25 and 26. Features of the program included: a panel discussion on "Weight Control"; a discussion of "Professional Responsibilities" by Dr. E. R. Walker, Queens College, Charlotte; and reports on the 2nd International Congress of Dietetics and A.D.A. affairs.

Officers of the North Carolina Dietetic Association are: President, Mabel G. Rogers, State School for the Blind, Raleigh; President-Elect, Florence Pittman, North Carolina Sanatorium, Wilson; Secretary, Elizabeth Outlaw,

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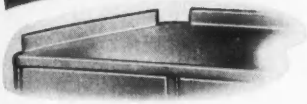
The IDEAL Model 9020 BC delivers with "kitchen control" 20 meals of hot and cold foods and dispenses both hot and cold liquids. This new IDEAL Mealmobile is truly a new plus in food serving efficiency!



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Eliminates dirt catching crevices. Open corners permit easy cleaning. Extended edge of guard prevents articles carried on top deck from sliding off in transit.

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Exclusive Ideal built-in beverage dispensers feature individual thermostatic control. Thoroughly insulated from each other and from the remainder of the cart, they can carry both hot and cold liquids. Each well has 5½ quart capacity.

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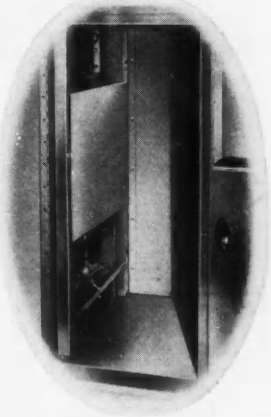
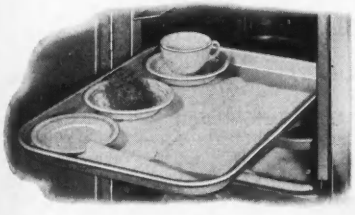
Exclusive Ideal overlapping doors provide positive seal regardless of temperature extremes. Easy to open and close. Glass fiber insulation reduces temperature change inside compartments.





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Alamance County Hospital, Burlington; and Treasurer, Winston Obsorn, Greensboro Health Department, Greensboro.

Virginia Dietetic Association. November 9 and 10 were the dates of the fall meeting of the Virginia Dietetic Association in Old Point Comfort. The program included:

"Trends in Refrigeration" by Larry Foster, President, Foster Refrigeration Company, Hudson, New York
"Protein in Nutrition"—Dr. Laura Harper, Virginia Polytechnic Institute
"Experiments in Feeding at High Altitudes"—Lt. Fredrick Thimm, Langley Air Force Base

Association Activities

New Issue of "Dietitians in Demand." This A.D.A. leaflet has been completely rewritten and redesigned, with the result that it is not only strikingly attractive, but is much broader in its content than the previous revision. The eight-page, illustrated brochure stresses the need for the dietitian, the variety of positions available, and how one can become such a professionally qualified person. The former prices—single copies, 5 cents; lots of 50, $2; and lots of 100, $3—are still applicable.

Career Materials. The Association has cooperated in reviewing career materials that include dietetics which are being developed by the Women's Bureau, U. S. Department of Labor, and the American Home Economics Association.

Glamour Magazine in its January issue carried career guidance information about the profession.

Assistance has also been given in the development of other publications which will appear in the next few months.

Midyear Meetings. Midyear meetings of the A.D.A. Executive Board and Coordinating Cabinet will be held during the week of February 18 in Chicago. The Finance Committee will also meet at this time.

A.D.A. Representatives. Edith A. Jones, as an alternate representative, attended the meeting of the *National Advisory Committee on Emergency Feeding of Federal Civil Defense Administration* on December 14, in Washington. The training materials on emergency mass feeding which will soon be released were reviewed, and our Association's role in the promotion of the courses to be held was discussed. Evelyn Anderson is the Association's official representative on this committee.

Catherine Kellermann, The New York Hospital, was the Association's representative at the second meeting of the *Program Committee of the Seventh American Congress on Maternal Care* in New York City on November 8. Dr. Samuel B. Kirkwood, Program Chairman, invited representatives from a number of allied organizations to participate. The Congress will be held July 9 to 12, 1957, at the Palmer House in Chicago. "Complete Maternity Care" will be the theme of the meeting, in which nutrition and dietetics are well represented.

Mary Reeves is a member of the Board of the *American Committee on Maternal Welfare, Inc.*, and attended a special meeting on December 15 in Chicago.

The Annual Meeting of the *American Association for the Advancement of Science* was held in New York City, December 26 to 31, 1956. Dr. Frances Johnston, Cornell University, is our representative on the A.A.A.S. Council. Many of our members attend these scientific sessions.

Mary McInerney, New York State Department of Health, was alternate representative to the Fourth Annual Meeting of the *National Citizens Committee for WHO* in Atlantic City on November 14, held during the meeting of the American Public Health Association. She attended the Policy Council meeting.

By-Laws Committee. The By-Laws Committee of the House of Delegates met in the Headquarters office on January 3. The constitutions of several state dietetic associations were reviewed. Genevieve Anthony is Chairman, with Florence Dunkle and Ida Wides Klassen as members of the Committee.

Obituaries

Estelle Barker. The A.D.A. office has received word of the death of Estelle Barker, Chief Dietitian, Manhattan Eye and Ear Hospital, New York City.

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EXTRA NOURISHMENT

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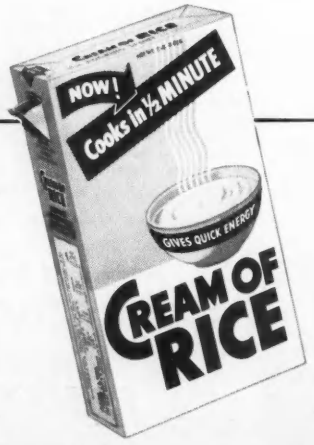
Cream of Rice has a delicate flavor. Different, delicious. This is a creamy rice treat that really tastes good.



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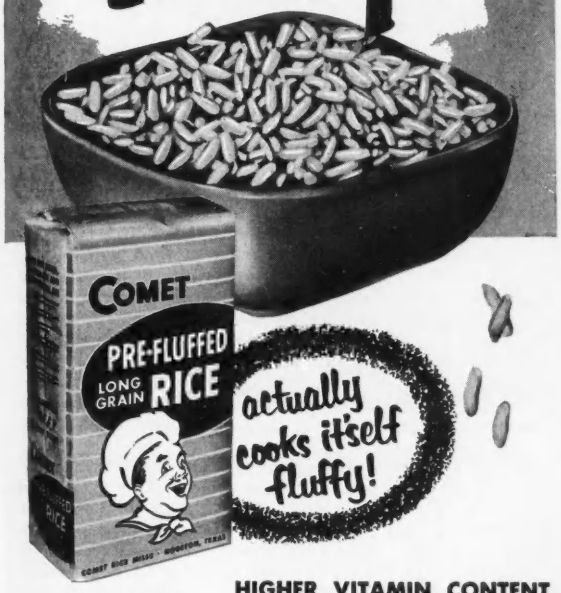

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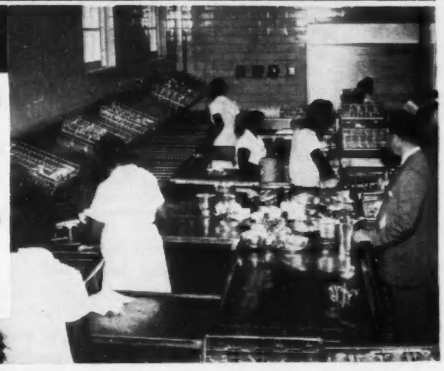

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DINE WELL WITH CELLU FOODS!

THE MISSING

THE $11,000 that one institution saved last year by switching to Bombay California Valencia Orange and Grapefruit Bases—made that $11,000 *available* for other menu improvements. If your food service department seems to be *"missing"* a large sum of money for use in various directions . . . why not consider the savings effected by Bombay! *Only* $0.0157 per 4-ounce serving Orange, and *only* $0.0147 per 4-ounce serving Grapefruit. These delicious beverages are noteworthy for their delicious meal-appeal, as well as appetizing between-meal nourishment. Nutritional standards are constant—more than the minimum daily adult Vitamin-C requirement in every 4-ounce serving.

BOMBAY California Valencia Orange and Grapefruit Bases

For Samples, without obligation, write:

The H. R. NICHOLSON CO.
Kenahaw and Oakleaf Avenues, Baltimore, Maryland

Miss Barker had been a member of the Association since 1919, a year after its founding. She was also a charter member of the Greater New York Dietetic Association, having served as its third president. She was a graduate of Pratt Institute. She had also been employed by the Pioneer Ice Cream Division of the Borden Company, New York City, and Grassland Hospital, Valhalla, New York.

Elizabeth D. Terrill. Notification has been received by A.D.A. of the death in 1955 of Elizabeth Durant Terrill of Chattanooga, Tennessee. She had formerly been employed by the public school system of Chattanooga. Her membership in A.D.A. dated back to 1933.

News of Products and Services

The *American Institute of Baking* introduced at the A.D.A. Annual Meeting in Milwaukee its latest nutrition education device—a food mobile designed to take advantage of recent art trends. By balancing cardboard food models, the mobile represents the balancing of foods which children eat each day. Cutting out the food models (which are in full color) and assembling the mobile can be a classroom project. When finished and suspended in the classroom, it is a daily reminder to the children that a balanced diet is important to health and not difficult to achieve. It is planned to be flexible, so that changes of the various food models can be made from time to time, assuring pupil interest. The mobile is being made available without charge to elementary school teachers who include nutrition education in their curriculums.

"Whatever Your Age . . . Feel Better by Eating Better" is the title of a new leaflet by Ruth M. Leverton, Ph.D., which is being distributed by the *National Dairy Council*. Designed to appeal to the "senior citizen," it discusses three common dietary faults—too little milk drinking, too small intake of protein, and too many calories—and explains why they should be corrected. A point-rating chart to check protein intake is included.

Instantly soluble chocolate-flavored malted milk has been introduced by *The Borden Company*. To produce it, whole milk is combined with the liquid separated from a fermented mash of ground barley malt and whole wheat flour. To this is added sugar, cocoa, lecithin, and salt, and a new Borden process makes the product instantly soluble. The proportion of barley malt to wheat flour is double the quantity required to meet the Federal Standards of Identity for plain malted milk; hence the product is called "double malted." On a powder basis, the Instant Chocolate "Double Malted" Milk contains an average of 5.5 per cent fat and 1.6 per cent moisture. To reconstitute to a beverage, 2 heaping tsp. are added to 8 oz. milk, either hot or cold. A pound of

Two great products that speed up profits

WHITATO*

"Anti-Oxidant"

Keeps Peeled Potatoes White Without Water Storage

Whitato saves oil, saves frying time, improves flavor and color. One pound treats up to 3,200 pounds of peeled potatoes. Whitato also keeps peeled apples, bananas and other fruits and vegetables bright.

Whitato also available in portion pack.

ANCO

THIS NAME IS YOUR GUARANTEE OF FINEST QUALITY

ANCO-X

Fat and Oil Extender

Stops foaming — no more "mothering" the basket. Retards rancidity, cuts frying cost and keeps oil fresh twice as long.

*Process covered by U.S. Patent No. 2628905

TRY THESE OTHER ANCO QUALITY PRODUCTS ALL SOLD ON A MONEY BACK GUARANTEE

- ANCO "10" MEAT TENDERIZER
- ANCO SHREDDED CHICKEN
- ANCO'S COMPLETE LINE OF QUALITY SOUP BASES
- ANCO DIETETIC SOUP BASES
- ANCO SAVORY COLOR
- ANCO GC—(deep fryer and grill cleaner)
- ANCO STOP-STICK (prevents food from sticking to cooking utensils)

See your institutional jobber or write

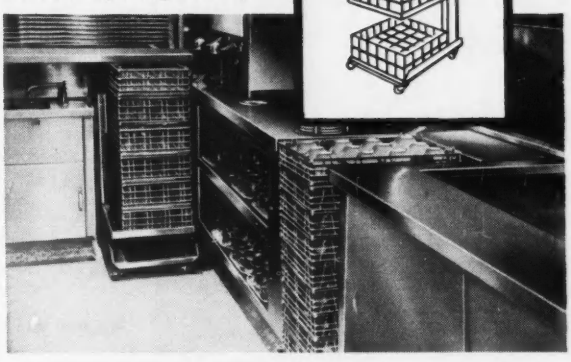
L. L. ANTLE & CO., INC.

125 Piedmont Ave., N.E., ATLANTA, GA.

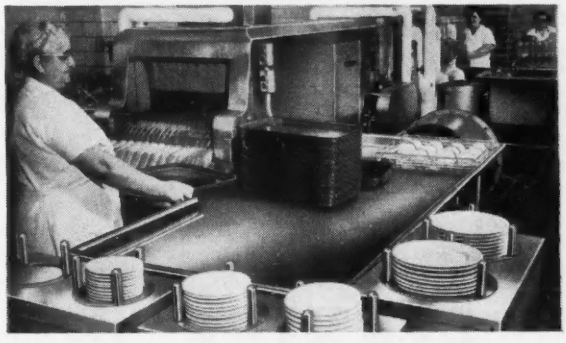
Member Institutional Food Manufacturers of America

Cut dish-handling costs with AMF LOWERATOR* Dispensers

- Reduce breakage
- Speed service
- Combine dispensing with storage
- Increase operating efficiency



Large supplies of cups and glasses, kept safe and sanitary in these AMF Lowerator Dispensers, are always at fingertip reach. Cantilever design automatically provides storage space for empty racks under carrier when top rack is removed. Easily wheeled back to dish washer for reloading. Holds up to 18 doz. glasses, 12 doz. cups.



In the mobile AMF Lowerator Dispenser System, all dishes are loaded into Dispensers right at the dish washer. Planned quantities of dishes are then wheeled directly to service positions. Reduced handling cuts breakage, makes work easier, speeds service.

Your Food Service Equipment Dealer will assist you in planning the AMF Lowerator Dispenser System best suited to your needs. See him or write for catalog illustrating the complete line of AMF Lowerator Dispensers.

Another AMF Product

LOWERATOR SELF-LEVELING DISPENSERS

*LOWERATOR is the registered AMF trademark for self-leveling dispensers.

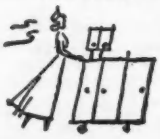
LOWERATOR DIVISION
AMERICAN MACHINE & FOUNDRY COMPANY
AMF Building · 261 Madison Avenue · New York 16, N. Y.

A Successful Operation

For the past three years the "Hospital of the Year" awards have gone to hospitals which have successfully used the original "Meals-on-Wheels System". These hospitals chose Meals-on-Wheels System as part of their *successful operation* for they know that a hospital is judged by the food it serves. Before you decide, you should know more about the system that pays for itself in more ways than one.

For complete details write now to

Meals-on-Wheels System



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5001 E. 59th St.
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Save while you serve the best!

Van Winkle's

Whole Milk

PUDDING and PIE FILLING

Add only water

- Home-made taste and texture! Whole homogenized milk already in. Velvety-smooth texture...won't get hard or crusty.
- Easier to prepare! Cooks in half the usual time because of low starch content. Thickens to ideal consistency while cooling!
- Nutritious! High in milk protein.

VANILLA • CHOCOLATE BUTTERSCOTCH

Six 5-lb. tins to a case

Each tin makes approx. 66 4-oz. servings (8 qts.)

Webster Van Winkle Corporation
Summit, New Jersey

also National Distributors of

Brown Swiss—dry creamed cocoa
Sanalac—non fat dry milk
Cheflac—dry sweet cultured buttermilk
Snowflake—whole milk powder
Van Winkle Concentrated Gelatins

NEW! Low Price Beverage Server Saves its Cost in Less than a Year!

THE STANLEY WINDSOR

"It will not break!"

Why worry about broken china—when for a little more you can buy a genuine STANLEY Thermal Server. The new *unbreakable* STANLEY Windsor means better service at lower cost... they're so inexpensive they can even be used in wards. Stainless-steel construction, special non-hinge top and built-in oversize handle assure long, trouble-free life. For all the facts on the new STANLEY Windsor *and its amazingly low price,* write us today!

STANLEY INSULATING DIVISION
LANDERS, FRARY & CLARK, NEW BRITAIN, CONN.

this "double malted" powder will make an average of twenty-four servings. It is suggested that it can also be used as a flavoring for sauces, cakes, cookies, candies, icings, and hot breads, such as waffles and muffins.

Pillsbury Mills, Inc. is offering a new six-page leaflet which provides simple instructions for making and shaping dinner rolls of all kinds—cluster, twin, cloverleaf, Parker House, butter flake, and so on. Drawings show exactly how to form these rolls, as well as such complicated types as double knot rolls, Kaiser knot rolls, and triple braids. Also included are basic directions for using Pillsbury's Hot Roll Mix and Deluxe Dinner Roll Mix, with portion cost and yield data as well.

Anco Stop-Stick is a new product developed by *L. L. Antle & Co.*, to prevent food from sticking to cooking utensils. It is both odorless and tasteless and can be used on waffle irons, frying pans, baking sheets, lift-lid sandwich toasters, pie pans, grills, and muffin pans.

Pet Milk Company has announced the appointment of Helen Taylor as Director of its Home Economics Department. Miss Taylor is a graduate of Stout Institute and holds a master's degree in institutional management and restaurant administration from the University of Chicago. Her experience has included wartime service as a mess officer in the U. S. Air Force and management of the Woman's Club of Minneapolis.

Amcoin Corporation has introduced a new sanitary automatic coffee creamer which can be attached to all types of coffee urns, allowing coffee to be drawn either with cream or black. The ratio of cream to coffee is adjustable by means of a two-way creamer faucet. The tank and cover of the creamer are constructed in accordance with standards of the International Association of Milk Sanitarians. With a capacity of 5 qt. cream, the tank-creamer is 12 in. high, 7⅜ in. in over-all diameter, with a 1½-in. deep ice tray. Plastic tubing connections between the tank and faucet are easily flushed with hot water and may be steam sterilized.

Amcoin Corporation has also added a new line of mass production units in 20, 30, 50, and 100 gal. for large-quantity coffee-making. The new units incorporate the company's "scientifically timed infusion process" to produce a full bodied brew with a guaranteed savings of more than 20 per cent in coffee and cream.

From Wheat to Flour is the title of the *Wheat Flour Institute's* new booklet, which tells the story of wheat from its beginning as the seed of a wild grass through modern flour milling. This illustrated brochure has been planned to serve as a basic reference for teachers and students in the upper elementary grades, high schools, and colleges. Topics discussed include: wheat in history and civilization; kinds of wheat; where wheat is grown; growing, harvesting, shipping, storing, and selling wheat; milling—yesterday and today; grades and classes of flour; standards for enriched flour; wheat flour products in today's meal

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GEVRAL* PROTEIN

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Conveniently supplies essential nutrients for 24 hours!

To prepare, mix 1 quart whole milk, 3 cups (405 Gm.) non-fat milk powder, 4 heaping tablespoons (60 Gm.) GEVRAL PROTEIN.

Add water to make 2,000 cc.

This formula supplies:

Liquid	2,000 cc.
Protein	217 Gm.
Fat	42 Gm.
Carbohydrate	273 Gm.
Calories	2,354

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ONE OF A COMPLETE LINE OF VITAMIN PRODUCTS
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FORMULATED UNDER RIGID QUALITY CONTROL FOR YOUR PRESCRIPTION NEEDS

Lederle LEDERLE LABORATORIES DIVISION
AMERICAN CYANAMID COMPANY
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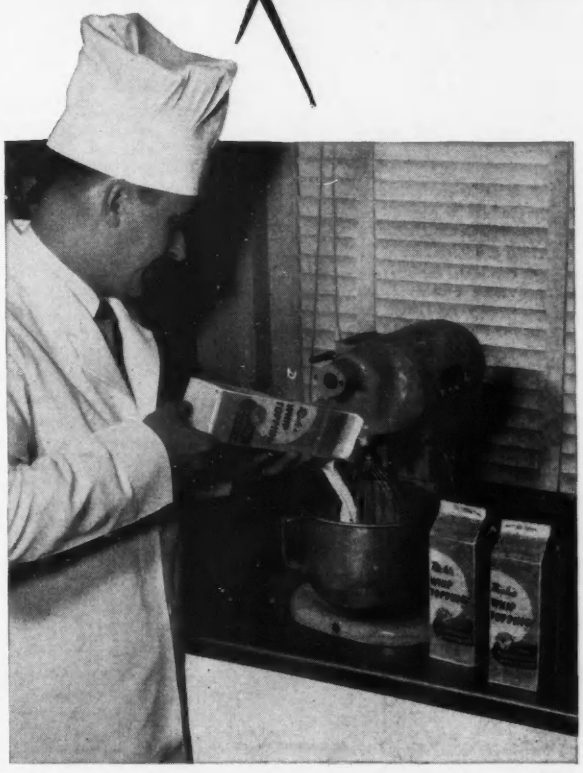
enough for

THREE'S A CROWD!



▶ He'll get three *gallons* of whipped topping from those three quarts of Rich's *Diamond Process*. And considering the low cost of Rich's *Diamond Process* WHIP TOPPING, that represents *real* saving! What's more, there's never waste since left over topping can be used a day or two later...usually with no rewhipping. Ask your frozen food distributor about this amazing, *non-perishable* dessert topping, or write: Rich Products Corp., 1148 Niagara St., Buffalo 13, New York.

Rich's
diamond process® WHIP
TOPPING

CRAMORES CRYSTALS
are ideal for institutional use, providing consistent year-round top quality real fruit flavor—at half the price.

★ *Easy to use and store—no spoilage—no squeezing*
★ *Economical—you always have just the right amount on hand*

CRAMORES CRYSTALS
made from a base of pure, dehydrated citrus fruit juices with fruit components added to enhance flavor and body—are available in lemon-lime and orange.

CRAMORE FRUIT PRODUCTS, INC.
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GIVE YOUR DOCTOR A CHANCE

400,000 Americans, leading active lives today, are living proof of the fact that cancer can be cured if detected in time. Give your doctor a chance to give you this protection by having a physical checkup every year of your life. This should include a chest x-ray for men; for women, a pelvic examination. Make it a habit . . . for *life*.

AMERICAN CANCER SOCIETY

planning; and food value of wheat flour foods. Single copies will be provided free to professional persons, while student copies sell at 25 cents each.

Hotpoint Co. has added a new SUPERhot-top range to its line of SUPERline ranges. The new range will handle up to 40 gal. of food in stockpots at one time. The SUPERhot-top can be banked with any of the others in the line for a "custom-looking" installation in a minimum space. The new range offers a three-section cook-top consisting of independently controlled hotplate sections. Each section has Calrod (R) heating units imbedded in the cast iron for efficient heat transfer. A handy-size warming drawer is located under the surface units on one side to keep food warm until ready to serve, and a drip pan on the other side is fed by grease troughs which drain into it.

Another new *Hotpoint* product is the Rocket Hotplate, a powerful, two-unit hotplate which is designed to bank perfectly with the company's Rocket 12-X griddle. Both high-speed cooking units on the Rocket Hotplate are independently controlled by three-heat switches, which also serve as on-and-off switches. Each unit will hold up to a 16-qt. stockpot for the preparation of stews, soups, chowders, sauces, and gravies, and can bring 2 qt. water to full boil from a cold start in just 5.99 min.

A full-color, thirty-seven frame filmstrip titled "Skimpy and a Good Breakfast" has been prepared by the *Cereal Institute, Inc.*, for use in elementary schools. The actual frames are the result of testing in primary grade classrooms with storyboards and later with 2 by 2 slides. One-line captions with simple words for the primary child's own vocabulary are used to tell the story. Points for class discussion are introduced as questions on "discussion frames" where research indicated the need for them. Prints of the filmstrip are available on a long-term loan basis to elementary schools which have active filmstrip libraries. Prints are also being placed on loan in film libraries servicing elementary schools.

The appointment of Louise A. K. Frolich as Food Service Specialist has been announced by *Koch Refrigerators, Inc.* Miss Frolich will direct the development of commercial refrigerator applications in the kitchen. Her experience has included service in the AMSC as Captain, an assistant professorship in institution management at the University of Alabama, and work as senior home economist of Midwest Research Institute, Kansas City, Missouri.

"Snowflake Coconut" is the newest addition to the regular line of Durkee's Coconut produced by *Durkee's Famous Foods Division, The Glidden Company.* Snowflake Coconut is a sweetened, extra-thin, ribbon-cut coconut, packaged in a triple-ply laminated foil bag. Due to the superior protective qualities of the new foil package, Durkee is guaranteeing Snowflake Coconut to be "nature fresh" on the grocer's shelf and when it reaches the consumer.

A "Buttermilk Biscuit Mix" has been introduced by *Downyflake Institutional Products Division, Doughnut Corporation of America.* With the new mix, it is claimed that light and tender biscuits with a distinct tempting flavor can now be produced by large-scale food operators at a minimum cost by inexperienced kitchen employees.

McCall Refrigerator Corporation has introduced what it calls "THERMcCold Hot 'N Cold Food Banks" for use in cafeteria service layouts. By using these storage banks, foods can be stored, either hot, cold, or frozen, behind the cafeteria counter to be withdrawn conveniently during rush periods. Two types are available, the pass-through and the wall-type. For the small school or cafeteria, the pass-through type is usually more suitable and comes in a choice of two depths, depending on the size of trays used. One model, for instance, with six doors, can be two-thirds cold storage and one-third hot. Or, if two units are desired, one hot and one cold, the hot model in turn can be divided to provide separate storage of meats and rolls. To this could be added a freezer section, if desired. For larger operations, wall-type Hot 'N Cold Food Banks can be installed, providing varying proportions of hot and cold storage space.

Ad. Seidel & Son Inc. has added gelatin and puddings to its line of institutional foods. Now available are: Crab-Apple Gelatine Dessert and Chocolate Mint Pudding. The crab-apple gelatin is distinctive with actual pieces of fruit incorporated in it and a blush-pink color. Prepared according to directions, the cost of a 3-oz. serving is only 1½ cents. The chocolate mint pudding is available in a choice of instant pudding or to-be-cooked style, which is called "Chocolate Mint Dessert." The cost of an average serving of either is reported to be 2¾ cents.

The *Pure-Pak Division* of *Ex-Cell-O Corporation* has produced a new 27-min. full-color film titled "The New Story of Milk." Narrated by Bob Considine, the new film highlights significant contrasts between old and new methods of handling milk and illustrates how a modern dairy farm is run, how milk is transported, the operation of city dairies, and advances in milk packaging. A pocket-size booklet resumé of the film is available for distribution after showings of the film. The film may be obtained for free one-week loans from Modern Talking Picture Service, Inc., 3 East 54th Street, New York 22, or may be purchased from Robert J. Enders, Inc., 1001 Connecticut Ave., N. W., Washington 6, D. C.

"Solving Problems with Paper Service" is the title of the latest booklet published by the *Paper Cup and Container Institute, Inc.* Prepared for school food service managers, it presents information on ways in which paper products can be used in the school lunch to solve problems of "no facilities," portion control, pre-portioning, and freezing. Uses in milk, juice, and water service are also high-lighted, as are the sanitary aspects of the use of paper products and the relative costs. A final section illustrates the different types of paper products available for food service.